UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF TEXAS
DALLAS DIVISION

PEDRO RAMIREZ, JR., Individually and on Behalf of All Others Similarly Situated,

Plaintiff,

v.

EXXON MOBIL CORPORATION, REX W. TILLERSON, ANDREW P. SWIGER, JEFFREY J. WOODBURY and DAVID S. ROSENTHAL,

Defendants.

Civil Action No. 3:16-cv-03111-K

CLASS ACTION

EXPERT REPORT OF ALLEN FERRELL, PH.D.

PLAINTIFF'S EXHIBIT
CASE NO.
EXHIBIT NO. 13

I. Qualifications

1. I am an economist and the Greenfield Professor of Securities Law at Harvard Law School. I received a Ph.D. in economics from the Massachusetts Institute of Technology with fields in econometrics and finance and a J.D. from Harvard Law School. My Ph.D. dissertation concerned the relationship between stock prices and financial disclosures. After law school I clerked for Judge Silberman of the United States Court of Appeals for the D.C. Circuit and Justice Kennedy of the Supreme Court of the United States.

2. I am also a faculty associate at the Kennedy School of Government at Harvard, a fellow at Columbia University's Program on the Law and Economics of Capital Markets, a research associate at the European Corporate Governance Institute, and a member of the editorial board of the Journal of Financial Perspectives. I formerly was a member of the Board of Economic Advisors to the Financial Industry Regulatory Authority ("FINRA"), an academic fellow at FINRA, Chairperson of Harvard's Advisory Committee on Shareholder Responsibility (which is responsible for advising the Harvard Corporation on how to vote shares held by its endowment), the ABA Task Force on Corporate Governance, American Law Institute Project on the Application of U.S. Financial Regulations to Foreign Firms and Cross-Border Transactions, and an executive member of the American Law School section on securities regulation.

3. I have testified before the U.S. Senate Subcommittee on Securities, Insurance, and Investment and presented to, among others, the Securities and Exchange Commission ("SEC"), the World Bank, the International Monetary Fund, the Structured Products Association, and the National Bureau of Economic Research. I have published approximately 30 articles in leading law and finance journals. I have also been an expert witness in a variety of securities matters. My

testimony in the last four years and academic work are summarized on my curriculum vitae, which is attached hereto as Appendix A.

4. I have been assisted by Compass Lexecon staff in this matter. My analyses, opinions, and conclusions are based solely on the work performed by me, and those under my supervision, through the date of this report. I am being compensated for my work on this matter at an hourly rate of $1,250. My compensation is not contingent upon my opinions and conclusions, or the outcome of this matter.

5. The materials I have considered are listed in Appendix B.

6. This report is subject to change or modification should additional relevant information become available which bears on the analysis, opinions, or conclusions contained herein.

II. Summary of Factual Background

7. Lead Plaintiff Greater Pennsylvania Carpenters Pension Fund ("Plaintiff") alleges that defendants Exxon Mobil Corporation ("ExxonMobil" or the "Company"), Rex W. Tillerson, Andrew P. Swiger, David S. Rosenthal, and Jeffrey J. Woodbury (together, "Defendants") misled investors because ExxonMobil's investment and asset valuation processes did not comport with its representations concerning the use of a carbon "proxy cost" as described in its "Energy and Carbon – Managing the Risks" Report and its "Energy and Climate" Report, both released on March 31, 2014 (the start of the purported Class Period).[1] Plaintiff contends that ExxonMobil's actual policies in fact used either a lower proxy cost of carbon or no proxy cost of carbon in internal

[1] Complaint at ¶¶1-10. The purported class period runs from March 31, 2014 to January 30, 2017 (the "Class Period"). *See* Lead Plaintiff's Mem. of Law in Support of Mot. for Class Cert. dated December 21, 2018 at 1.

cash flow models for various projects including the Kearl Lake Canadian Bitumen Operation ("Kearl Operation") and the Rocky Mountain Dry Gas Operation ("Rocky Mountain Operation"). Plaintiff bases these contentions on information contained in the Affirmation of John Oleske in Opposition to ExxonMobil's Motion to Quash and in Support of the Office of the Attorney General's Cross-Motion to Compel dated June 2, 2017 (the "Oleske Affirmation").[2] Plaintiff further alleges that "ExxonMobil did not incorporate GHG [Green House Gas] or carbon 'proxy costs' into [its] asset impairment evaluation processes."[3]

8. Plaintiff also alleges ExxonMobil failed to take certain accounting measures on the Canadian bitumen operations (including the Kearl Operation) and the Rocky Mountain Operation. Relying on the analysis contained in the Declaration of Charlotte J. Wright, Ph.D., CPA dated July 20, 2017 (the "Wright Declaration"), Plaintiff alleges in the Complaint that Defendants made misrepresentations by failing to disclose that:

- "ExxonMobil's Canadian Bitumen Operations were operating at a loss;"
- "ExxonMobil knew the Kearl Operation could not satisfy the SEC definition for proved reserves at year-end 2016, absent an extraordinary – and, by ExxonMobil's own internal estimates, unexpected – rise in the price of oil;" and
- "A significant portion of ExxonMobil's Rocky Mountain Dry Gas Operation was impaired by no later than year-end 2015, thus requiring the Company to record an asset impairment charge in its financial statements."[4]

9. Plaintiff claims that the alleged truth concealed by these misrepresentations was revealed to the market on seven corrective disclosure dates: (i) a November 9, 2015 article in *The Guardian*, (ii) a January 20, 2016 article in the *Los Angeles Times*, (iii) ExxonMobil's quarterly earnings announcement on July 29, 2016, (iv) an August 10, 2016 Op-Ed in the *Washington Post*,

[2] *Id.* at ¶14.
[3] *Id.* at ¶247.
[4] *Ibid.*

(v) ExxonMobil's quarterly earnings announcement on October 28, 2016, (vi) a January 19, 2017 downgrade of ExxonMobil by an UBS analyst, and (vii) ExxonMobil's quarterly earnings announcement on January 31, 2017. Putative class members allegedly suffered "economic losses as the price of Exxon's common stock fell in response to the issuance of [these] partial corrective disclosures."[5]

III. Assignment and Summary of Opinions

10. I have been retained by Paul, Weiss, Rifkind, Wharton & Garrison LLP, counsel for defendants ExxonMobil, Andrew P. Swiger, David S. Rosenthal, and Jeffrey J. Woodbury, to analyze whether the alleged misrepresentations identified in the Complaint and their purported correction with the revelation of the alleged truth had a price impact on ExxonMobil's stock price.

11. Based on my analysis I have concluded that neither the alleged misrepresentations nor their purported correction had a price impact on ExxonMobil's stock. More specifically, I conclude:

- None of the alleged misrepresentations caused a positive and statistically significant stock price reaction;
- Five of the seven purported corrective disclosure dates experienced no statistically significant price reaction, including all of the disclosures related to the allegations concerning how ExxonMobil described its use of carbon proxy costs; and
- The other two purported corrective disclosures (July 29, 2016 and October 28, 2016) pertained to reserves de-booking and asset impairment. The information that purportedly corrected Defendants' alleged misrepresentations had been readily available to the market long before these disclosures, as the analysis of Dr. Wright (Plaintiff's own expert) shows. As a result, the alleged corrective information disclosed on those dates was already impounded into ExxonMobil's stock price and thus could not have had a price impact.

[5] *Id.* at ¶425.

12. I provide more detail and support for my opinions in the sections below.

IV. Scientific Foundations for Price Impact Analysis

13. I will begin by providing an overview of academic research on stock price behavior and efficient markets before turning to the analytical framework appropriate for a price impact analysis.

A. Stock Price Behavior and Efficient Markets

14. In an efficient market, finance theory tells us that stock prices reflect the expected future cash flows of a company.[6] These expectations are influenced by market, industry, and company-specific factors. Stock prices that trade in an efficient market reflect the total mix of publicly available information regarding these expected future cash flows.[7] Publicly available information containing such value-relevant information can encompass everything from a company's public SEC filings to newspaper articles.

15. A central tenet of the efficient market hypothesis is that as new information becomes public, stock prices "quickly and fully" reflect that information.[8] An immediate corollary is that for a public disclosure of information to significantly alter the total mix of publicly available information and impact the stock price, it must be different from what was already known or expected by the market. Known or expected information would have already been priced in an

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[6] Brealy, Richard A., Myers, Stewart C., and Allen, Franklin, *Principles of Corporate Finance* (New York: McGraw-Hill/ Irwin, 2003), 60-61.
[7] Brealy, Richard A., Myers, Stewart C., and Marcus, Alan J., *Fundamentals of Corporate Finance* (New York: McGraw-Hill/ Irwin, 2004), 165.
[8] Jones, Charles P., *Investments: Analysis and Management* (Hoboken, NJ: John Wiley & Sons, 2013), 320.

efficient market.[9] Only new public information will necessitate a revision of the company's expected future cash flows and, hence, result in a changed stock price. In short, only new information is "news" in an efficient market.

16. The academic literature has explored how "quickly" new information is "fully" reflected in the stock price in an efficient market. Numerous academic studies indicate the market's reaction to new events is immediate and unbiased.[10]

17. Plaintiff itself contends that "the market for Exxon common stock was informationally efficient during the Class Period."[11] Plaintiff supports this contention by relying on the analysis contained in the Expert Report of Frank C. Torchio dated December 31, 2018 (the "Torchio Report"). In the Torchio Report, Mr. Torchio opines that ExxonMobil met the five factors listed by the court in *Cammer v. Bloom* to assess market efficiency.[12] First, according to Mr. Torchio, ExxonMobil's average weekly trading volume (1.5% of shares outstanding during the Class Period) exceeded the *Cammer* benchmark for heavily traded stocks of 1% of shares outstanding. Second, over the Class Period, ExxonMobil had an "extensive" average analyst coverage of 28 analysts, which, according to Mr. Torchio, is greater than 94% of NYSE and

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[9] Elton, Edwin J., Gruber, Martin J., Brown, Stephen J., and Goetzmann, William N., *Modern Portfolio Theory and Investment Analysis* (Hoboken, NY: John Wiley & Sons, 2003), 402.
[10] *See, for example*, Kothari, S.P., "Capital Markets Research in Accounting," *Journal of Accounting and Economics* 31, (2001): 105–231, Ederington, Louis H., and Lee, Jae Ha, "The Short-Run Dynamics of the Price Adjustment to New Information," *Journal of Financial and Quantitative Analysis* 30 no. 1 (1995): 117 – 134, Busse, Jeffrey A., and T. Clifton Green, "Market Efficiency in Real Time," *Journal of Financial Economics* 65, no. 3 (2002): 415–437, Visaltanachotti, Nuttawat and Yang, Ting, "Speed of Convergence to Market Efficiency for NYSE-listed Foreign Stocks," *Journal of Banking and Finances* 34, no. 3 (2010): 594 – 605 *and* Černý, Alexandr, "Stock Market Integration and the Speed of Information Transition," Working Papers Series – Charles University (2004): 1 – 25.
[11] *See* Expert Report of Frank C. Torchio dated December 21, 2018 (the "Torchio Report") at ¶11. *See also* Torchio Report at ¶¶25-123.
[12] *See Cammer v. Bloom*, 711 F. Supp. 1264, 1286-87 (D.N.J. 1989) ("*Cammer*").

NASDAQ stocks. Third, Mr. Torchio notes the presence of a NYSE Designated Market Maker for ExxonMobil's stock during the Class Period. The presence of a NYSE Designated Market Maker provided liquidity and facilitated trades in ExxonMobil's stock, thus satisfying another *Cammer* factor.[13] According to Mr. Torchio, ExxonMobil also satisfied the last two *Cammer* factors: factor four, that ExxonMobil was eligible to file a Form S-3 with the SEC during the Class Period, and factor five, that ExxonMobil's stock price had a cause-and-effect relationship with unexpected corporate events or financial releases because there was an immediate response in price to such events or releases during the Class Period. Therefore, Plaintiff argues that ExxonMobil was informationally efficient during the Class Period.

18. In order to test the theory that new value-relevant public information should elicit a stock price reaction in an efficient market, there is a widely used and generally accepted statistical framework for testing whether there was in fact a stock price movement. This is the event study.[14] An event study controls for market and industry effects (estimated with the use of market and industry indices) on the stock price, thereby isolating the portion of the stock price movement that

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[13] According to NYSE, Designated Market Makers ("DMMs"): 1) "Have true obligations to maintain a fair and orderly market in their stocks, quote at the NBBO a specified percentage of the time, and facilitate price discovery throughout the day as well as at the open, close and in periods of significant imbalances and high volatility"; 2) "Provide price improvement and match incoming orders based on a pre-programmed Capital Commitment Schedule, which has been added to the NYSE Display Book, minimizing order latency. DMMs and their algorithms do not receive a "look" at incoming orders. This ensures that an intermediary does not see orders first, and that DMMs compete as a market participant"; and 3) "Are on parity with quotes from floor brokers and those on the Display Book, encouraging DMM participation and higher market quality." *See* NYSE, "Designated Market Makers," 2018 https://www.nyse.com/publicdocs/nyse/listing/fact_sheet_dmm.pdf.

[14] *See, for example,* Ferrell, Allen and Atanu Saha, "The Loss Causation Requirement for Rule 10b-5 Causes-of-Action: The Implication of Dura Pharmaceuticals v. Broudo," *The Business Lawyer* 63, (2007): 163–186.

is company-specific (the "residual return") for a given time period.[15] The time period being examined is referred to as an event window.

19. The event window used can vary depending on whether the date and the time of the event at issue are known. If the date of the event at issue is known but the specific time of day it occurred is unknown, it is customary to use an event window that compares the closing price on the prior day to the closing price on the day on which the event occurs ("close to close").[16] If, however, both the day and the time of the event are known, one can conduct a more targeted analysis that has a so-called "intraday" window to accurately capture the event.[17] In particular, for events that occur at a specific time outside of regular trading hours (i.e. earnings announcements outside of regular trading hours), trading prices, to the extent they are available, may not be

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[15] The residual is the difference between the actual return for a given time period and the return predicted by the regression model based upon market and industry factors.

[16] *See, for example,* Dunbar, Frederick C., and Tabak, David, I., "Materiality and Magnitude: Event Studies in the Courtroom," *NERA Working Paper Series* no. 34 (1999): 1-34 at 7-8,"Event windows are the periods over which stock price movements are calculated…one typically would start the event window at the end of the trading day before the announcement was made.... The end of the event window...many experts have adopted the convention of looking at one-day...".

[17] *See* Ferrell, Allen and Atanu Saha, "The Loss Causation Requirement for Rule 10b-5 Causes-of-Action: The Implication of Dura Pharmaceuticals v. Broudo," *The Business Lawyer* 63, (2007):163–186 at 168,"On a corrective disclosure day, there may be a disclosure event as well as firm-specific news unrelated to the alleged fraud. In that case the estimated abnormal return on that day…measures the combined effect of the disclosure and the unrelated firm-specific news. This confounding effect problem is exacerbated when using multi-day event windows as the longer the event window, the more likely it is that confounding events occurred. Potential ways of dealing with this problem include (a) deletion of the confounded days from the event study; and (b) the use of intra-day data." *See also* Levchenko, Anton, Müller, Simon, and Schimmer, Markus, "Intraday Event Studies," *Event Study Tools (Research Apps)* (2014), "With the increasing availability of intraday price data, intraday event studies are quickly becoming the new standard, beginning with high-profile use cases such as securities litigation." *See also* Aktas, Elvan, "Intraday Stock Returns and Performance of a Simple Market Model," *Journal of Applied Financial Economics* 18, no. 18 (2008), "With enhancements in information technology, increased institutional and automated trading, and previously unmatched availability of online trading grew the attention to intraday movements of security prices and tests associated with them. This study analyses the properties of both observed 5-minute stock returns and of excess returns obtained by using a variety of alternative models common to event studies."

considered reliable given the lack of trading during after-hours or pre-market trading. Consequently, prices during such trading times may not accurately reflect the impact of new information. Instead, the reported price might fully reflect the new information only when the market opens.[18] Hence, the use of an event window that looks at the price movement from the closing price on the prior day to the opening price on the following morning ("close to open") is appropriate.[19]

20. In any case, it is not appropriate to use a two-day event window for an efficiently traded stock when a disclosure occurs at a known date and time.[20] The mere restatement of previously disclosed information or analyst commentary on that information, which would have already been impounded into the company's stock price, does not add new information to the market and therefore does not warrant the use of longer event windows. Moreover, using an inappropriately lengthy event window can distort the statistical significance of price movements, showing purported statistical significant price movement where none exists.

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[18] *See* Lee, Jae Ha, and Gerlach, Jeffrey R., "Is the Opening Price Efficient? Evidence from After-Hours Earnings Announcements," *SSRN Electronic Journal* (2011) (finding that opening prices for heavily traded stocks, such as ExxonMobil, are highly efficient, i.e. fully incorporate information released into the opening stock price, following after-hours earnings announcements).
[19] *See, for example*, Barclay, Michael J., and Litzenberger, Robert H., "Announcement Effects of New Equity Issues and the Use of Intraday Price Data," *Journal of Financial Economics* 21 (1988): 71-99; Francis, Jennifer, Pagach, Donald, and Stephan, Jens, "The Stock Market Response to Earnings Announcements Released during Trading versus Nontrading Periods," *Journal of Accounting Research* 30 (1992): 165-184; Trueman, Brett, Wong, M.H. Franco, and Zhang, Xiao-Jun, "Anomalous Stock Returns around Internet Firms' Earnings Announcements," *Journal of Accounting* 34 (2003): 249-271.
[20] *See, for example,* McWilliams, Abigail and Siegel, Donald S., "Event Studies in Management Research: Theoretical and Empirical Issues," *The Academy of Management Journal* 40, no. 3 (1997): 626-657 at 636, "In the absence of uncertainty about when information is actually revealed to the market, it is difficult to justify a long window. As noted earlier, the assumption of market efficiency implies almost instantaneous adjustment in stock price to the arrival of new information."

21. The event study's statistical framework must account for market and industry effects as well as normal random movements in the stock price. To conclude that residual price movements (i.e., those not attributable to market and industry effects) in the stock are not simply a function of normal random price movements, the residual must be "statistically significant." The test of statistical significance is based on measuring the random price movements of the stock over the event study's "estimation period." From these measurements a "confidence interval" is calculated, which is simply a range that contains a specified fraction of the random stock price movement observations. A residual is then typically considered "statistically significant" in an event study if the residual lies outside the 95% confidence interval.[21] A "t-statistic" for the residual return exceeding +/- 1.96 indicates that the residual lies outside this 95% confidence interval and is therefore statistically significant.[22]

22. For the purposes of my event study analysis, I have generally adopted Mr. Torchio's regression model.[23] Specifically, I use the same market and industry indices – the S&P Total Return Index and the S&P Integrated Oil & Gas Total Return Index – and the same "estimation

[21] Using a 95% confidence interval for determining statistical significance is a standard metric for event studies. *See* Federal Judicial Center, *Reference Manual on Scientific Evidence* (National Academies Press, 2011): 320, "In most scientific work, the level of statistical significance required to reject the null hypothesis (i.e., to obtain a statistically significant result) is set conventionally at 0.05, or 5%. The significance level measures the probability that the null hypothesis will be rejected incorrectly. In general, the lower the percentage required for statistical significance, the more difficult it is to reject the null hypothesis; therefore, the lower the probability that one will err in doing so. Although the 5% criterion is typical, reporting of more stringent 1% significance tests or less stringent 10% tests can also provide useful information."
[22] The t-statistic is calculated by dividing the residual return by the standard error of the regression.
[23] I have updated Mr. Torchio's model to include July 29, 2016 as an alleged corrective disclosure date, an additional date identified by the Plaintiff in the Supplemental Response and Objections to Interrogatory.

period," i.e. one year prior to the date of each disclosure at issue.[24] Moreover, I consider the same event windows as Mr. Torchio, except for his use of a two-day event window to determine the statistical significance of an alleged corrective disclosure.[25] Appendix C provides a further detailed description of the model specification.

23. The analysis of stock price behavior does not end with a finding of a statistically significant residual from an event study. Suppose that an event study finds a statistically significant residual that is contemporaneous with a public disclosure of firm specific information. In order to attribute the stock price movement to the public disclosure, there is still another crucial step in the analysis. As one textbook explains:

> An event study can tell us that something happened, but it can't tell us *why*. To explain positive or negative [residuals], we must closely examine the events and institutions involved. . . . [The event study technique] only – though this is substantial – helps delineate what needs to be explained.[26]

Only by comparing the pre-existing total mix of publicly available information to the firm-specific information released can a researcher reliably determine whether a particular disclosure is likely responsible for a stock price movement. Mr. Torchio himself states that "economic analysis of

[24] Specifically, I employ a rolling regression in the same manner Mr. Torchio does in his analysis. For each day in the Class Period, the market model is calculated using the prior 252 trading days as the estimation period.
[25] Specifically, I only consider October 28, 2016 and January 31, 2017 as alleged corrective disclosure dates, and not the multi-day event windows of October 28, 2016 to October 31, 2016 and January 31, 2017 to February 1, 2017. As stated later on in this report, a two-day event window is justified only if there is new or incremental information released following a corrective disclosure. Based on my review of the documents cited in the Torchio Report, no information released on October 29, 2016 to October 31, 2016, or February 1, 2017 justifies the use of a two-day event window.
[26] Black, Bernard S. and Gilson, Ronald J., *The Law and Finance of Corporate Acquisitions* (Westbury NY: The Foundation Press, Inc., 1995), 221 (emphasis in the original).

truth-on-the-market requires an analysis of the content and context of disclosures so the researcher may correctly determine the interpretation of the disclosure made by the market."[27]

24. For example, if the particular disclosure at issue was simply repeating information already known to the market, a researcher could not attribute, consistent with efficient markets, a residual return – regardless of whether it happens to be statistically significant – to such a disclosure. Similarly, if there is reason to conclude that the particular disclosure consisted of information not considered value-relevant by the market, then a researcher could not attribute, consistent with efficient markets, the residual return to such a disclosure. Disclosures that simply repeat information already known to the market or that pertain to matters that are irrelevant to market participants would not cause a revision in the company's expected future cash flows and, hence, its stock price.

B. Price Impact and the Alleged Truth

25. The price impact inquiry is focused on stock price reactions to a particular type of disclosure: the alleged truth. Specifically, the price impact inquiry consists of analyzing the following hypothetical: if the company had revealed to the market the alleged truth – rather than concealing it by making the alleged misrepresentations – would such a disclosure have resulted in a stock price movement? If so, the alleged misrepresentations have price impact. It is crucial to emphasize that the "alleged truth" that could and should have been disclosed earlier – the focal point of the price impact inquiry – is a function of the Plaintiff's theory of liability. Once the truth that had been allegedly misrepresented and concealed has been identified by Plaintiff, a financial economist can then apply the scientific framework discussed above, including event study analysis, to test for price impact.

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[27] Torchio Report at ¶143.

26. To apply the scientific framework discussed above to this question, the standard approach then is to analyze the stock price behavior when the alleged misrepresentations and disclosures actually occurred. If the alleged misrepresentations in fact caused the market to view the company more favorably than before (and presumably more favorably than if it had been told the alleged truth that was being concealed), then one would expect to observe a positive and statistically significant residual return on these dates. In a similar vein, a researcher should analyze stock price behavior when the alleged truth was actually disclosed (the "corrective disclosures").

27. I will now apply the scientific framework discussed above to assess whether there was any price impact on ExxonMobil's stock price associated with the alleged misrepresentations. I will do so in three steps. First, I will briefly make one key observation concerning the "alleged truth" given the Plaintiff's theory of liability. Second, I will assess whether the alleged misrepresentations caused a price impact when made by analyzing whether they caused positive and statistically significant residual returns on those dates. Third, and finally, I will assess whether the alleged corrective disclosures that supposedly revealed the alleged truth caused a price impact at the times they were made.

V. The Alleged Truth In Relation to the Wright Declaration

28. Before turning to the analysis of ExxonMobil's stock price behavior, there is one crucial observation concerning the alleged truth with respect to some of the alleged misrepresentations and corrective disclosures that should be made from the outset. Plaintiff alleges in the Complaint, based on the Wright Declaration, that:

- Defendants made misrepresentations by failing to disclose that "ExxonMobil's Canadian Bitumen Operations were operating at a loss;"

- "ExxonMobil knew the Kearl Operation could not satisfy the SEC definition for proved reserves at year-end 2016, absent an extraordinary – and, by ExxonMobil's own internal estimates, unexpected – rise in the price of oil;" and
- "A significant portion of ExxonMobil's Rocky Mountain Dry Gas Operation was impaired by no later than year-end 2015, thus requiring the Company to record an asset impairment charge in its financial statements."[28]

29. Dr. Wright's analyses concerning each of these alleged misrepresentations is based entirely on information that was *already publicly available* prior to the alleged corrective disclosures. In other words, the alleged truth that was being misrepresented and concealed, according to Dr. Wright, consists of information *already known* to the market and therefore had to be, consistent with efficient markets, already reflected in ExxonMobil's stock price at the time of the purported corrective disclosure. Needless to say, the repetition of this alleged truth in a corrective disclosure long after the market knows the information cannot logically result in price impact. I will revisit this issue in more detail when I discuss the alleged corrective disclosure date of July 29, 2016.

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[28] Complaint at ¶247.

VI. Analysis of Alleged Misrepresentation Dates

30. Exhibit 1 below details the results of the event study regression analysis for each of the alleged misrepresentation dates.[29,30] Specifically, it reports for each alleged misrepresentation date ExxonMobil's residual return, the associated t-statistic and whether the residual return is statistically significant using a 95% confidence interval. These results are the same as Mr. Torchio's results for the respective alleged misrepresentation dates.[31]

31. As one can see from Exhibit 1, none of the alleged misrepresentations resulted in a positive and statistically significant residual return. The only two instances of a statistically significant price movement (July 31, 2014 and July 31, 2015) actually resulted in a negative return in ExxonMobil's stock.[32] Given this, none of the alleged misrepresentations had a price impact by virtue of causing a positive and statistically significant stock price reaction.

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[29] The Complaint quotes Defendant David S. Rosenthal's comments made on July 31, 2014 and states that '[these comments] provide a strong inference that Defendant Rosenthal was aware of - or severely reckless in failing to be aware of - the facts underlying the matters he discussed, which necessarily included the fraudulent conduct alleged herein (Complaint at ¶388)." For the purposes of my analysis, I have assumed that Plaintiff intended July 31, 2014 to be an alleged misrepresentation date.

[30] For dates with multiple alleged misrepresentations that occur overnight and during the trading day, I employ the close to close event window to capture all the events at issue on the date.

[31] *See* Torchio Report at Exhibit 5.

[32] On six of the alleged misrepresentation dates, the events occurred when markets were closed (March 31, 2014; February 23, 2015; February 25, 2015; March 4, 2015; February 24, 2016; and March 2, 2016). The results of the event study regression using a close to open event window for these dates are not statistically significant. The alleged misrepresentations on March 30, 2016 did not have a timestamp available. The results of the event study regression using a close to open event window for this date and the following day, March 31, 2016, are also not statistically significant.

Exhibit 1
Regression Results for Alleged Misrepresentations
ExxonMobil Return = Intercept + S&P 500 Total Return Index (Net of Exxon) + Industry Index

	[A] Timestamp (ET)	[B] Event	[C] Statistics	[D] Close to Close Results
1	3/31/14 4:34 PM	ExxonMobil release "Energy and Carbon – Managing the Risks" (the "MTR Report") and "Energy and Climate" which Plaintiff allege were false and misleading as it failed to disclose information on internal use of carbon proxy costs	Residual Return	-0.18%
			t-Statistic	-0.30
			Statistically Significant	No
2	7/31/14 11:00 AM	On an earnings call Defendant Rosenthal makes comments Plaintiff alleges suggest that he is aware of alleged fraudulent conduct underlying the facts he discussed [1]	Residual Return	-2.44%
			t-Statistic	-3.99
			Statistically Significant	Yes
3	2/23/15 9:00 AM	ExxonMobil releases a reserve report Plaintiff alleges was false and misleading because it failed to disclose omitted information on proxy costs	Residual Return	-0.59%
			t-Statistic	-1.11
			Statistically Significant	No
4	2/25/15 4:26 PM	ExxonMobil releases 10-K Plaintiff alleges was false and misleading because it failed to disclose its use of private proxy costs in internal calculations [3]	Residual Return	0.05%
			t-Statistic	0.10
			Statistically Significant	No
5	3/4/15 9:00 AM	ExxonMobil hosts analysts' meeting which Plaintiff alleges failed to disclose information about its private proxy costs	Residual Return	-0.45%
			t-Statistic	-0.84
			Statistically Significant	No
6	4/30/15 11:00 AM	ExxonMobil holds its first quarter earnings call which Plaintiff alleges failed to disclose information about its private proxy costs	Residual Return	0.10%
			t-Statistic	0.20
			Statistically Significant	No
7	5/27/15 11:30 AM	ExxonMobil holds its annual shareholder's meeting which Plaintiff alleges failed to disclose information about its private proxy costs	Residual Return	-0.54%
			t-Statistic	-1.03
			Statistically Significant	No
8	7/31/15 9:30 AM	ExxonMobil holds its second quarter earnings call which Plaintiff alleges failed to disclose information about its private proxy costs	Residual Return	-1.98%
			t-Statistic	-3.71
			Statistically Significant	Yes
9	10/30/15 9:30 AM	ExxonMobil holds its third quarter earnings call which Plaintiff alleges failed to disclose information about its private proxy costs	Residual Return	0.23%
			t-Statistic	0.38
			Statistically Significant	No
10	2/2/16 8:00 AM 2/2/16 10:30 AM	ExxonMobil releases its 2015 financial statements and holds its fourth quarter earnings call which Plaintiff alleges failed to disclose information about steps being taken to account for impact of climate change [4]	Residual Return	0.87%
			t-Statistic	1.30
			Statistically Significant	No

Exhibit 1
Regression Results for Alleged Misrepresentations
ExxonMobil Return = Intercept + S&P 500 Total Return Index (Net of Exxon) + Industry Index

	[A] Timestamp (ET)	[B] Event	[C] Statistics	[D] Close to Close Results
11	2/19/16 1:00 PM	ExxonMobil issues "ExxonMobil Announces 2015 Reserves Additions" which Plaintiff alleges misled investors with regards to efforts taken to evaluate and account for the impact of climate change on reserve assets	Residual Return	0.15%
			t-Statistic	0.21
			Statistically Significant	No
12	2/24/16 4:09 PM	ExxonMobil releases its 2015 form 10-K which Plaintiff alleges misled investors with regard to the potential impact of climate change on assets [3]	Residual Return	0.21%
			t-Statistic	0.28
			Statistically Significant	No
13	3/1/16 8:49 PM 3/2/16 9:00 AM	ExxonMobil files prospectus with the SEC and holds its 2016 analysis' meeting which Plaintiff alleges failed to disclose information on the risks of climate change to assets [3]	Residual Return	0.82%
			t-Statistic	1.08
			Statistically Significant	No
14	3/30/16	ExxonMobil publishes its 2015 Corporate Citizenship Report which Plaintiff alleges failed to disclose information about its private proxy costs [2]	Residual Return	-0.26%
			t-Statistic	-0.33
			Statistically Significant	No
15	4/13/16 10:09 AM	ExxonMobil files notice of shareholders' meeting and proxy statement with the SEC which Plaintiff alleges failed to disclose information about its private proxy costs [3]	Residual Return	0.27%
			t-Statistic	0.34
			Statistically Significant	No
16	4/29/16 8:00 AM 4/29/16 9:30 AM	ExxonMobil releases first quarter earnings and holds its earnings call which Plaintiff alleges contained misleading information with regards to reserve assets and the Canadian bitumen operations [4]	Residual Return	0.54%
			t-Statistic	0.69
			Statistically Significant	No
17	5/12/16 11:01 AM	ExxonMobil holds its annual executive compensation conference call which Plaintiff alleges failed to disclose information on its private proxy costs	Residual Return	0.47%
			t-Statistic	0.61
			Statistically Significant	No
18	5/25/16 10:30 AM	ExxonMobil holds its annual shareholders' meeting which Plaintiff alleges failed to disclose information on its private proxy costs	Residual Return	-0.27%
			t-Statistic	-0.34
			Statistically Significant	No
19	11/3/16 11:10 AM	ExxonMobil files its 10-Q form with the SEC which Plaintiff alleges failed to disclose information about its private proxy costs [3]	Residual Return	0.31%
			t-Statistic	0.44
			Statistically Significant	No

Notes:
[1] The Complaint quotes Defendant David S. Rosenthal's comments made on July 31, 2014 and states that '[these comments] provide a strong inference that Defendant Rosenthal was aware of - or severely reckless in failing to be aware of - the facts underlying the matters he discussed, which necessarily included the fraudulent conduct alleged herein (Complaint at ¶388)." For the purposes of my analysis, I have assumed that Plaintiff intended July 31, 2014 to be an alleged misrepresentations date.
[2] There is no available timestamp for the release of the Corporate Citizenship Report on March 30, 2016. The close to close residual return for the following day, March 31, 2016, is also not statistically significant.
[3] For SEC Filings the timestamp comes from the "Accepted" field on the SEC Edgar database.
[4] For dates with multiple alleged misrepresentations that occur overnight and during the trading day, the close to close event window is employed to capture all the events at issue on the date.
Sources:
[1] "ExxonMobil Releases Reports to Shareholders on Managing Climate Risk," ExxonMobil press release, March 31, 2014.
[2] S&P Capital IQ, "Exxon Mobil Corporation FQ2 2014 Earnings Call Transcripts," July 31, 2014.
[3] "ExxonMobil 2014 Reserves Replacement Totals 104 Percent," ExxonMobil press release, February 23, 2015.
[4] ExxonMobil Corp., Form 10-K for the Period Ending December 31, 2014 (filed February 25, 2015).
[5] "Exxon Mobil Corporation Presentation and Q&A Session Analyst Meeting," ExxonMobil, March 4, 2015.
[6] S&P Capital IQ, "Exxon Mobil Corporation FQ1 2015 Earnings Call Transcripts," April 30, 2015.
[7] S&P Capital IQ, "Exxon Mobil Corporation Shareholder/Analyst Call," May 27, 2015.
[8] S&P Capital IQ, "Exxon Mobil Corporation FQ2 2015 Earnings Call Transcripts," July 31, 2015.
[9] S&P Capital IQ, "Exxon Mobil Corporation FQ3 2015 Earnings Call Transcripts," October 30, 2015.
[10] S&P Capital IQ, "Exxon Mobil Corporation FQ4 2015 Earnings Call Transcripts," February 2, 2016.
[11] "ExxonMobil Announces 2015 Reserves Additions," ExxonMobil press release, February 19, 2016.
[12] ExxonMobil Corp., Form 10-K for the Period Ending December 31, 2015 (filed February 24, 2016).
[13] ExxonMobil Corp., Form 424B2 (filed March 2, 2016); S&P Capital IQ, "Exxon Mobil Corporation Analyst/Investor Day," March 2, 2016.
[14] "ExxonMobil 2015 Corporate Citizenship Report," ExxonMobil, March 30, 2016.
[15] ExxonMobil Corp., Form DEF 14A (filed April 13, 2016).
[16] "ExxonMobil Earns $1.8 Billion in First Quarter of 2016," ExxonMobil press release, April 29, 2016; S&P Capital IQ, "Exxon Mobil Corporation Analyst/Investor Day," March 2, 2016.
[17] S&P Capital IQ, "Exxon Mobil Corporation Special Call," May 12, 2016.
[18] S&P Capital IQ, "Exxon Mobil Corporation Shareholder/Analyst Call," May 25, 2016.
[19] ExxonMobil Corp., Form 10-Q for the Period Ending September 30, 2016 (filed November 3, 2016).

VII. Analysis of Alleged Corrective Disclosure Dates

32. I will now analyze whether any of the purported corrective disclosures of the alleged truth caused a negative price impact. Consistent with the scientific framework I described at the beginning of my report, my analysis consists of both assessing whether the disclosure is value-relevant new public information and, moreover, whether there was in fact a negative statistically significant residual return associated with such a disclosure. I find no reliable economic evidence that any of the alleged corrective discloses had a price impact on ExxonMobil's stock.

33. I also compare my analysis with Mr. Torchio's event study analysis of the alleged corrective disclosure dates, which analyzes only two of the seven purported corrective disclosures (October 28, 2016 and January 31, 2017). Whereas Mr. Torchio finds "evidence of a cause-and-effect relationship" or a statistically significant price reaction on October 28, 2016, I find no reliable economic evidence that the alleged corrective information disclosed on October 28, 2016 could have caused a price impact.[33] On January 31, 2017, similar to Mr. Torchio, I find no statistically significant price reaction as a result of the disclosure of purportedly corrective information.[34]

34. To begin, Exhibit 2 contains the results of the event study regression using both "close to open" (i.e. over-night) and "close to close" (i.e. one-day) event windows. For the alleged corrective disclosures that occur over-night, I look at the results of the "close to open" event window. For alleged corrective disclosures that occur during market hours or that do not have a specific time of day, I look at the results of the "close to close" event window. As with Exhibit 1 for the alleged misrepresentation dates, Exhibit 2 reports for each alleged corrective disclosure

[33] Torchio Report at ¶73 and ¶79.
[34] *Id.* at ¶88.

dates the residual return, the associated t-statistic and whether the residual return is statistically significant using a 95% confidence interval. With these results in hand, I will now turn to analyze each of the alleged corrective disclosure dates.

Exhibit 2
Regression Results for Alleged Corrective Disclosures
ExxonMobil Return = Intercept + S&P 500 Total Return Index (Net of Exxon) + Industry Index (Net of Market and Exxon)

	[A] Timestamp (ET)	[B] Event	[C] Statistics	[D] Close to Close Results	[E] Close to Open Results
1	11/5/15 12:05 PM	The *New York Times* publishes and article detailing the focus of the New York Attorney General's investigation concerning misrepresentations to investors about potential business risks of climate change [4]	Residual Return	-0.27%	
			t-Statistic	-0.45	
			Statistically Significant	No	
2	11/5/15 6:38 PM	*The Guardian* publishes an article detailing the focus of New York Attorney General's investigation concerning misrepresentations to investors about potential business risks of climate change [4]	Residual Return	-0.02%	-0.28%
			t-Statistic	-0.03	-0.80
			Statistically Significant	No	No
3	11/9/15 10:30 AM	*The Guardian* re-publishes its article from November 5, 2015 [2]	Residual Return	-0.97%	
			t-Statistic	-1.61	
			Statistically Significant	No	
4	1/20/16 3:00 AM	*The Los Angeles Times* reveals that the California Attorney General is investigating ExxonMobil for potential securities fraud	Residual Return	-1.95%	-0.23%
			t-Statistic	-2.94	-0.70
			Statistically Significant	Yes	No
5	7/29/16 8:00 AM	ExxonMobil reports EPS of $0.41, a miss of the consensus EPS of $0.64 and an upstream loss of $514 million	Residual Return	-1.92%	-1.96%
			t-Statistic	-2.48	-6.12
			Statistically Significant	Yes	Yes
6	8/9/16 Evening 8/10/16 1:11 PM	*The Washington Post* publishes an Op-Ed regarding ExxonMobil's attempt to thwart state investigations and *Environment and Energy Publishing* LLC publishes an article on the investigations [2]	Residual Return	-1.12%	-0.51%
			t-Statistic	-1.44	-1.60
			Statistically Significant	No	No
7	10/28/16 8:00 AM	ExxonMobil discloses potentially massive proved reserve de-booking	Residual Return	-4.44%	-2.83%
			t-Statistic	-6.24	-10.58
			Statistically Significant	Yes	Yes
8	1/18/17 5:30 PM	UBS downgrades ExxonMobil to "sell" [3]	Residual Return	-1.52%	-0.35%
			t-Statistic	-2.20	-1.36
			Statistically Significant	Yes	No
9	1/31/17 8:00 AM	ExxonMobil announces $2.03 billion asset impairment charge and confirms proved reserves de-booking	Residual Return	-0.95%	0.24%
			t-Statistic	-1.40	0.90
			Statistically Significant	No	No
10	6/2/17 7:50 AM	The Oleske Affirmation is filed [4]	Residual Return	-0.98%	0.16%
			t-Statistic	-1.76	0.59
			Statistically Significant	No	No

Notes:
[1] Close to open on day t refers to the change from close day t-1 to open day t. Whereas close to close on day t refers to the change from close day t-1 to close day t.
[2] November 9, 2015 and August 10, 2016 are ex-dividend dates. The returns have been adjusted accordingly.
[3] The timestamp for the UBS downgrade of ExxonMobil to sell is based on the first news release of the UBS analyst report. This is consistent with the Complaint which states that the downgrade occurred after trading hours on January 18, 2017.
[4] These events are not alleged corrective disclosures.
Sources:
[1] Gillis, Justin and Krauss, Clifford, "ExxonMobil Mobil Under Investigation in New York Over Climate Statements," *The New York Times*, November 5, 2015.
[2] Goldenberg, Suzanne, "ExxonMobil under investigation over claims it lied about climate change risks," *The Guardian*, November 5, 2015.
[3] Goldenberg, Suzanne, "ExxonMobil under investigation over claims it lied about climate change risks," *The Guardian*, November 9, 2015.
[4] Penn, Ivan, "State Investigates Exxon Mobil on Climate Change; Kamala Harris Wants to Know Whether the Oil Company Lied to Investors About Risks," *Los Angeles Times*, January 20, 2016.
[5] "ExxonMobil Earns $1.7 Billion in Second Quarter of 2016," ExxonMobil press release, July 29, 2016.
[6] Warren, Elizabeth and Whitehouse, Sheldon, "Big Oil's Master Class in Rigging the System," *Washington Post*, August 9, 2016; Hess, Hannah, "Dems Question Exxon Support of Carbon Tax, Call for Hearings," *Energy and Environment News*, August 10, 2016.
[7] "ExxonMobil Earns $2.7 Billion in Third Quarter of 2016," ExxonMobil press release, October 28, 2016.
[8] UBS, "ExxonMobil Corp.: Growth, Yield, ROCE and FCF No Longer Warrant Material Premium, Reducing Rating to Sell," January 18, 2017; "Exxon Mobil gets downgrade from UBS," *Dow Jones Newswires*, January 18, 2017.
[9] "ExxonMobil Earns $7.8 Billion in 2016; $1.7 Billion in During Fourth Quarter," ExxonMobil press release, January 31, 2017.
[10] Affirmation of John Oleske in Opposition to ExxonMobil's Motion to Quash and in Support of the Office of the Attorney General's Cross-Motion to Compel dated June 2, 2017.

A. Alleged Corrective Disclosure #1 – *The Guardian* Article (11/09/2015)

35. Plaintiff claims the first alleged corrective disclosure occurred on November 9, 2015 following the publication of an article by *The Guardian*. The Complaint alleges the article revealed the New York Attorney General ("NYOAG") was investigating whether ExxonMobil "lied to investors about climate change and 'the dangers and potential business risks' that the Company faced." Specifically, the article detailed that the investigation would focus on "'any inconsistencies between the company's knowledge of climate change … and its filings to the Securities Exchange Commission and other government regulatory agencies.'"[35,36] Plaintiff claims this information was a partial corrective disclosure of the "Energy and Carbon – Managing the Risks" Report because it purportedly revealed that "the NYOAG was 'investigating whether [ExxonMobil] misled the public and investors about the dangers and potential business risks of climate change.'"[37]

36. There is no price impact associated with this alleged corrective disclosure. First, the residual return for that day is not statistically significant (this information was released during the trading day at 10:30 AM ET, and as such, I use the one-day close to close event window). The price movement on November 9, 2015 is fully explainable by market and industry movements on that day.

37. Second, the information reported in the article had already been published previously and therefore cannot be considered, consistent with efficient markets, new corrective information. There were in fact two previously published articles. *The Guardian* itself published

[35] Complaint at ¶426.
[36] *See* Goldenberg, Suzanne, "ExxonMobil under investigation over claims it lied about climate change risks," *The Guardian*, November 9, 2015.
[37] Complaint at ¶13.

the same article four days earlier on November 5, 2015 (at 6:38 PM ET).[38] Moreover, an article in *The New York Times* also published on November 5, 2015 (at 12:05 PM ET) provided essentially the same information.[39] As can be seen from Exhibit 2, the residual return for ExxonMobil stock was not statistically significant on a close to open event window from market close on November 5, 2015 to market open on November 6, 2015 (for the first *The Guardian* article) or the one day close to close event window from market close on November 4, 2015 to market close on November 5, 2015 (for *The New York Times* article).

38. The lack of price impact associated with these earlier articles is not surprising given the apparent lack of interest in the analyst community concerning this issue. My review of a sample of 480 contemporaneous research analyst reports revealed only six analyst reports that provided any analyst commentary about the NYOAG's investigation.[40,41] However, among these

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[38] *See* Goldenberg, Suzanne, "ExxonMobil under investigation over claims it lied about climate change risks," *The Guardian,* November 5, 2015.

[39] *See* Gillis, Justin and Clifford Krauss, "ExxonMobil Mobil Under Investigation in New York Over Climate Statements," *The New York Times,* November 5, 2015.

[40] *See* Societe Generale, "Oil & Gas: 3Q15 Americas IOCs," November 20, 2015; Simmons & Company, "Extent of Premium Valuation Becoming More Difficult to Sustain," October 31, 2016; Barclays, "Upstream Miss, Prefer SU and COP," October 31, 2016; Morgan Stanley, "3Q16: Missed and Likely Impaired," October 31, 2016; Wells Fargo Securities, "XOM: Some Smoke But Likely No Fire; Lowering Valuation Range," September 20, 2016; BMO Capital Markets, "Old Wine… New Bottle: Darren Woods to replace Rex Tillerson as Chairman & CEO," December 15, 2016.

[41] Among all ExxonMobil analyst reports available from March 2, 2014 to February 10, 2017, I selected a universe of 480 analyst reports based on the criteria that the contributor is an established equity research analyst or firm (e.g., Argus Institutional Partners, Barclays, Berman Sarrazin, BMO, Citi, Credit Suisse, Deutsche, Evercore, HSBC, Jefferies, Jefferson Research, JP Morgan, Macquire, Morgan Stanley, Morningstar, Oppenheimer, Simmons & Company, Raymond James, RBC Capital Markets, Societe Generale, S&P Capital IQ, UBS, Wells Fargo, and Zacks Research). Mr. Torchio himself places importance on analyst coverage explaining that "[r]eports issued by analysts serve the purpose of disseminating publicly available information along with analysis and recommendations by the analysts to investors." Torchio Report at ¶35. I conducted keyword searches using keywords such as "investigation," "NYOAG," "NY," "AG," and "attorney general" among the analyst reports.

six analyst reports, none considered the NYOAG's investigation significant enough to warrant changes to their price targets. For example, the analysts from Simmons & Company noted that "In our view the investigation in XOM's accounting practices lacks substance."[42] On the other hand, the analysts from Barclays and BMO Capital Markets analysts considered there was some reputational risk to companies under investigation, suggesting that they "anticipate[d] this issue [NYOAG's investigation] could continue to be a slight overhang on the [ExxonMobil] stock; since the initial news of the NY AG's probe, XOM shares have increased 3% vs. an avg. +12% for its American Major peers (9% ex. PBR)."[43] Despite this consideration of reputational risk, the analysts from Barclays' target price estimates remained unchanged following the publication of *The New York Times* and *The Guardian* articles, again demonstrating that the analysts did not consider the investigation significant.[44]

B. Alleged Corrective Disclosure #2 – *The Los Angeles Times* Article (01/20/2016)

39. The Complaint alleges that the publication of an article in *The Los Angeles Times* on January 20, 2016 (at 3:00 AM ET), represents another corrective disclosure concerning the climate allegations.[45] Plaintiff alleges that this article revealed that California Attorney General Kamala Harris was investigating whether ExxonMobil "repeatedly lied to the public and investors

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[42] Simmons & Company, "Extent of Premium Valuation Becoming More Difficult to Sustain," October 31, 2016, p. 2.

[43] Barclays, "Upstream Miss, Prefer SU and COP," October 31, 2016, p. 1. *See also* BMO Capital Markets, "Old Wine… New Bottle: Darren Woods to replace Rex Tillerson as Chairman & CEO," December 15, 2016.

[44] Based on S&P Capital IQ, Barclays' analysts held the same ExxonMobil target price estimate of $85 per share from October 12, 2015 to January 11, 2016.

[45] *See* Penn, Ivan, "State Investigates Exxon Mobil on Climate Change; Kamala Harris Wants to Know Whether the Oil Company Lied to Investors About Risks," *The Los Angeles Times*, January 20, 2016.

about the risks to its business from climate change, specifically, where ExxonMobil's actions 'could amount to securities fraud and violations of environmental laws.'"[46]

40. As can be seen in Exhibit 2, the residual return for ExxonMobil stock on January 20, 2016 on a close to open basis (i.e., from market close on January 19, 2016 to market open on January 20, 2016) is not statistically significant indicating that there was no price impact associated with *The Los Angeles Time* article (this article was released outside of trading hours, and as such, I use the close to open event window).

41. Like *The Guardian* and *The New York Times* articles, the lack of price impact associated with *The Los Angeles Times* article is not surprising given the apparent complete lack of interest in the analyst community concerning the California Attorney General's investigation into ExxonMobil. My review of the sample of 480 contemporaneous research analyst reports does not reveal *any* analyst commentary about the existence of the California Attorney General's investigation.[47]

C. Alleged Corrective Disclosure #3 – 2Q 2016 Earnings Announcement (07/29/2016)

42. Plaintiff alleges another corrective disclosure occurred on July 29, 2016, when ExxonMobil released its 2Q earnings for 2016 (at 8:00 AM ET). In Plaintiff's Supplemental Response and Objections to Interrogatory, it alleges that ExxonMobil's disclosure of a "significant miss of expectation in Upstream, including a reported loss of $514 million in U.S. Upstream…

[46] Complaint at ¶429.
[47] I conducted keyword searches using keywords such as "investigation," "California," "CA," "AG," and "attorney general" among the analyst reports.

driven heavily by poor performance by XTO and Kearl" was corrective of Defendants' previous misrepresentations.[48]

43. In Plaintiff's Supplemental Response and Objections to Interrogatory, the exact information the alleged corrective disclosure purports to reveal is not clearly identified. Nevertheless, I tested for any potential price impact this alleged corrective disclosure might have had. Given the timing of the announcement is outside of trading hours (at 8:00 AM ET), I use the close to open event window results (i.e., from market close on July 28, 2016 to market open on July 29, 2016). As shown in Exhibit 2, the residual return is statistically significant.

44. This raises the question whether the allegedly corrective information represents new value-relevant public information that could cause the statistically significant negative residual. The answer is no for two reasons.

45. First, the movements in ExxonMobil's stock price cannot be attributed to the alleged corrective information about the Kearl Operation (or more generally the Canadian bitumen operations) for the following reason. On the same day ExxonMobil released its 2Q earnings, Imperial Oil also released its quarterly earnings (at 7:55 AM ET). Imperial Oil is a majority-owned and fully-consolidated subsidiary of ExxonMobil with a direct exposure to the Canadian bitumen operations, including the Kearl Operation.[49] As such, if poor performance at the Kearl Operation were to have caused ExxonMobil's statistically significant negative price movement that day, one would expect to see at least a similarly negative statistically significant price reaction in Imperial Oil's stock as well since the companies share the same direct exposure to this Canadian bitumen operation. To test this, I conducted an event study on Imperial Oil's stock price to test

[48] Plaintiff's Supplemental Response and Objections to Interrogatory at 4.
[49] Complaint at ¶96.

whether this earnings announcement was associated with a statistically significant price movement. The details of this regression model are contained in Appendix C. Given the timing of the announcement is also outside of trading hours (at 7:55 AM ET), I use the close to open event window results (i.e., from market close on July 28, 2016 to market open on July 29, 2016). The results of this event study regression indicate that there was no statistically significant price movement for Imperial Oil during this event window. Given that there was no statistically significant price impact on Imperial Oil, the observed stock price reaction in ExxonMobil cannot be attributed to negative information related to the Canadian operations (including the Kearl Operation) shared by Imperial Oil and ExxonMobil.

46. Second, the alleged truth concerning the Kearl Operation and the Canadian bitumen operations is based on the factual assertions in the Wright Declaration. Specifically, Dr. Wright claims that ExxonMobil's 2015 10-K failed to reflect that:

- "[T]he Canadian Bitumen Operations were operating at a loss at the time Exxon filed its 2015 Form 10-K report, and that Exxon was required to disclose that fact pursuant to GAAP, as well as various FASB authoritative guidance and SEC regulations."[50]
- ExxonMobil "violated GAAP, as well as various FASB authoritative guidance and SEC regulations, by failing to provide more detailed and truthful disclosures concerning the likelihood that the Kearl project would not satisfy the SEC definition for "proved reserves" at year-end 2016."[51]

47. But Dr. Wright's analysis relies entirely on *publicly available* information.[52] Information made publicly available many months before July 29, 2016 simply cannot cause,

[50] Wright Declaration at ¶7.
[51] *Id.* at ¶8.
[52] Complaint at ¶¶277-280 and Wright Declaration at ¶¶40-72 and ¶¶88-101.

consistent with market efficiency, a market reaction on July 29, 2016 when allegedly revealed in a corrective disclosure (in the form of poor performance in a quarterly earnings report). For example, Dr. Wright heavily relies upon Imperial Oil's 2015 10-K and Form 51-101F1 reports (for information on such things as prices, costs and expected cash flows of proved reserves) for her claims that the alleged truth was being concealed until the corrective disclosures.[53] But the Imperial Oil reports were *publicly available* reports released on the same day (February 24, 2016) as ExxonMobil's 2015 10-K that contained the alleged misrepresentations—over five months in advance of the alleged corrective disclosure. Other publicly available information used by Dr. Wright include commodity prices and exchange rates, all of which are available to the public up to the then-current point in time. Exhibit 3 below lists the sources of information Dr. Wright relied upon for her analysis of the Kearl Operation (and more generally the Canadian bitumen operations), along with the date the information was publicly available.[54] That exhibit demonstrates that each of these sources of information was publicly available well before the alleged corrective disclosure.

[53] Wright Declaration at ¶¶40-72. Imperial Oil is the consolidated subsidiary of ExxonMobil. A Form 51-101F1 is the *Statement of Reserves Data and Other Oil and Gas Information* filed by publicly traded Canadian companies with significant oil and gas activities with the Canadian Securities Administrators on an annual basis.

[54] Dr. Wright also uses the Imperial Oil's Form 51-101F1 for 2016, filed and available to the public on February 23, 2017 to simply extend her analysis beyond 2015, none of which changes the claims she makes with respect to the Kearl Operation (and more generally the Canadian bitumen operations).

Exhibit 3
Dr. Wright's Opinion That ExxonMobil Should Have Disclosed in Its 2015 10-K That the Kearl Operation Would No Longer Satisfy Proved Reserve Definition Is Based on Publicly Available Information Available Prior to Alleged Disclosure Date July 29, 2016

[A] Source [1]	[B] Data	[C] Publicly Available?	[D] Date Available to Public	[E] Information Available to Public Prior to Alleged Disclosure Date July 29, 2016?
Imperial Oil's Form 51-101F1 for 2015	Average Breakeven Price per Barrel of Canadian Bitumen (Average Price Received, Average Production Costs, and Average Royalties Paid)	Yes	02/24/2016	Yes
Bank of Canada	Daily End-of-Day CAD-USD Exchange Rates for 2015 - 2016	Yes	Accumulated Daily	Yes [2]
Bloomberg, L.P.	WCS Daily Spot Price in USD for 2015 - 2016	Yes	Accumulated Daily	Yes [2]
Imperial Oil's Form 10-K for 2015	Standardized Measure of Discounted Future Net Cash Flows Related to Proved Oil and Gas Reserves	Yes	02/24/2016	Yes

Notes:
[1] Dr. Wright also relies on Imperial Oil's Form 51-101F1 for 2016, filed and available to the public on February 23, 2017, to compute an average breakeven price per barrel of Canadian bitumen (average price received, average production costs, and average royalties paid) for quarters in 2016. The Imperial Oil's Form 51-101F1 for 2016 is used to extend her analysis done for 2015 and is not required information to reach the same conclusions concerning the Kearl Operation as Dr. Wright.
[2] This source is a series of data that accumulates daily over time and is available to the public up to the then-current point in time.
Sources: Wright Declaration at ¶¶40-72; date of SEC filings obtained from SEC EDGAR.

48. The same observation holds true for the alleged truth concerning the Rocky Mountain Operation. Specifically, Dr. Wright claims that ExxonMobil's 2015 10-K failed to reflect that:

- "[T]hat proper application of ASC 360-10 to the Rocky Mountain dry gas operations (at issue in the 2016 Dry Gas Impairment Charge) would have resulted in recognition of impairment by no later than the end of the calendar year in 2015, and accordingly, Exxon should have taken an impairment charge related to those assets by at least the time the Company disclosed its fourth quarter and full year financial results for 2015."[55]

49. Again, Dr. Wright's analysis relies solely on publicly available information.[56] For example, Dr. Wright relies upon publicly filed 10-Ks by ExxonMobil and its competitors. Exhibit 4 below lists the sources of information Dr. Wright relied upon for her analysis of the Rocky

[55] Wright Declaration at ¶12.
[56] *Id.* at ¶¶88-101.

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Mountain Operation along with the date the information was made available to the public. All this information was available long before July 29, 2016.[57]

Exhibit 4
Dr. Wright's Opinion That ExxonMobil Should Have Taken in Its 2015 10-K an Impairment Charge on the Rocky Mountain Operation Is Based on Publicly Available Information Available Prior to Alleged Disclosure Date July 29, 2016

[A] Source [1]	[B] Data	[C] Publicly Available?	[D] Date Available to Public	[E] Information Available to Public Prior to Alleged Disclosure Date July 29, 2016?
Thomson Reuters	Henry Hub Natural Gas Spot Price in USD for 2014 - 2016	Yes	Accumulated Daily	Yes [2]
Ultra Petroleum's Form 10-K for 2015	Impairment Charge	Yes	02/29/2016	Yes
Vanguard Natural Resources' Form 10-K for 2015	Impairment Charge	Yes	03/08/2016	Yes
Breitburn Energy Partners' Form 10-K for 2015	Impairment Charge	Yes	02/26/2016	Yes
Article in *Platts Gas Daily*	Well Starts Data in the Rocky Mountains	Yes	03/24/2015	Yes
Vanguard Natural Resources' Form 10-K for 2014	Impairment Charge	Yes	03/02/2015	Yes
Breitburn Energy Partners' Form 10-K for 2014	Impairment Charge	Yes	03/02/2015	Yes
Encana Corporation	Divestiture Announcement	Yes	March 2014 [3]	Yes
Royal Dutch Shell	Divestiture Announcement	Yes	August 2014 [3]	Yes
Anadarko Petroleum	Divestiture Announcement	Yes	April 2015 [3]	Yes

Notes:
[1] Dr. Wright also relies upon ExxonMobil's, Ultra Petroleum's, Vanguard Natural Resources', and Breitburn Energy Partners' Form 10-Ks for 2016 (all filed and available to the public as of March 15, 2017) for average gas production costs to compare against these respective firms' 2015 average gas production costs (all filed and available to the public as of March 8, 2016). This information is used by Dr. Wright to further support her conclusion concerning the Rocky Mountain Operation and is not required information to reach the same conclusion as Dr. Wright given her other supporting information, such as observed competing firms' impairment charges and divestments in 2014 and 2015.
[2] This source is a series of data that accumulates daily over time and is available to the public up to the then-current point in time.
[3] Dr. Wright provides examples of dry gas asset divestments in 2014 and 2015 by other operators. Given that Dr. Wright does not provide what materials she relies upon for these examples, the time of these divestments listed by Dr. Wright in her declaration is assumed to be the date it is made available to the public.
Sources: Wright Declaration at ¶¶88-101; date of SEC filings obtained from SEC EDGAR.

50. In fact, based on my review of analyst and market commentary surrounding the earnings announcement of July 29, 2016, there was value-relevant non-fraud related information disclosed on that date. Analyst commentary surrounding the 2Q 2016 earnings release primarily attributed ExxonMobil's EPS miss to the wildfires in Canada and civil unrest in Nigeria during the quarter.[58] Those two one-time occurrences contributed to an approximate negative 100k

[57] Dr. Wright also relies upon ExxonMobil's, Ultra Petroleum's, Vanguard Natural Resources', and Breitburn Energy Partners' Form 10-Ks for 2016 (all filed and available to the public as of March 15, 2017) for average gas production costs to compare against these respective firms' 2015 average gas production costs (all filed and available to the public as of March 8, 2016). This information is used by Dr. Wright to further extend her analysis concerning the Rocky Mountain Operation, but does not change the claims she makes with respect to the Rocky Mountain Operation.

[58] *See* Credit Suisse, "2Q Had Temporary Negatives, Value Remains the Bigger Constraint," July 29, 2016; Deutsche Bank, "Even the King Has an Off Day Every Now and Then," July 29, 2016; *and* J.P. Morgan, "Atypically Large Miss, Lowering Estimates/PT," July 29, 2016.

barrels per day impact on ExxonMobil's production.[59] In contrast, among the 24 analyst reports I reviewed from July 28, 2016 to August 8, 2016, I did not observe references to asset impairments or potential de-bookings of ExxonMobil's proved reserves.[60]

D. Alleged Corrective Disclosure #4 – *Washington Post* Op-Ed (08/10/2016)

51. According to the Complaint, another alleged corrective disclosure took place when Senators Warren and Whitehouse published an Op-Ed after the close of the market on August 9, 2016 in the *Washington Post* titled, "Big Oil's master class in rigging the system." Plaintiff alleges that the article disclosed "Exxon and its allies with financial ties to the oil and gas industry were harassing and bullying investigators in an attempt to 'sidetrack state investigations and silence groups petitioning the government to address [ExxonMobil's] potential wrongdoing" and avoid "court-supervised discovery . . . into whether it has spent decades deliberately deceiving the public about the harms associated with [climate change].'"[61] Specifically, the article discusses House Science, Space and Technology Committee Chairman Lamar Smith issuing subpoenas "demanding that the state officials fork over all materials relating to their investigations."[62] Plaintiff further relies on an article published on August 10, 2016 during the day in *Environment and Energy Publishing LLC* reporting that "Senate Democrats were urging Republican leaders to call ExxonMobil executives to testify about climate change in light of state Attorney General investigations into whether ExxonMobil knowingly misled the public and investors regarding the

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[59] "Q2 2016 Earnings Call," Bloomberg Transcript, July 29, 2016.
[60] From my universe of 480 analyst reports, I reviewed all analyst reports from July 28, 2016 to August 8, 2016 (24 analyst reports) and conducted keyword searches using keywords such as "impairment," "reserve," "proved," "proven," "de-booking," and "write-down."
[61] Complaint at ¶432.
[62] *See* Warren, Elizabeth and Whitehouse, Sheldon, "Big Oil's Master Class in Rigging the System," *Washington Post*, August 9, 2016.

risks of carbon emissions."[63] The article also detailed that Senators Whitehouse and Schatz have "'seen no meaningful evidence of'" ExxonMobil's supposed support of a carbon fee and pointed to several groups funded by ExxonMobil who are "'vehemently against the carbon fee [that ExxonMobil] claim[s] to support.'"[64] Plaintiff alleges that "[these] disclosures partially corrected certain of Defendants' prior [misrepresentations]."[65]

52. As can be seen in Exhibit 2, the residual return for ExxonMobil stock on a close to open event window basis (i.e., from market close on August 9, 2016 to market open on August 10, 2016) is not statistically significant indicating that there was no price impact associated with the *Washington Post* Op-Ed (this Op-Ed was released outside of trading hours, and as such, I use the close to open event window). Additionally, the residual return on August 10, 2016 on a close to close event window basis (i.e., from market close on August 9, 2016 to market close on August 10, 2016) is not statistically significant indicating that there also was no price impact associated with the *Environment and Energy Publishing LLC* article (this article was published during the trading day on August 10, 2016 at 1:11 PM ET, and as such, I use the close to close event window).

53. These two articles along with the alleged corrective disclosures on November 9, 2015 in *The Guardian* and on January 20, 2016 in the *Los Angeles Times* constitute all of the alleged corrective disclosures concerning the climate-related/ExxonMobil's description of its use of carbon proxy costs allegations.[66] None of them result in a statistically significant negative residual. To be complete, the Complaint does also rely on the Oleske Affirmation for its carbon

[63] *See* Hess, Hannah, "Dems Question Exxon Support of Carbon Tax, Call for Hearings," *Energy and Environment News*, August 10, 2016.
[64] Complaint at ¶434.
[65] *Id.* at ¶435.
[66] Some information in the Op-Ed and the *Environment and Energy Publishing LLC* article is also repetitive of information contained in earlier alleged corrective disclosures, such as the disclosures made on November 9, 2015 and January 20, 2016.

proxy cost allegations. The Oleske Affirmation was filed on June 2, 2017 (at 7:50 AM ET) with the New York County Clerk and revealed to the market the entirety of the climate-related allegations at issue in this litigation.[67] As can be seen in Exhibit 2, ExxonMobil's stock on June 2, 2017 does not have a statistically significant residual return on a close to open event window basis (the Oleske Affirmation was filed outside of trading hours, and as such, I use the close to open event window, i.e., from market close on June 1, 2017 to market open on June 2, 2017).

E. Alleged Corrective Disclosure #5 – 3Q 2016 Earnings Announcement (10/28/2016)

54. On October 28, 2016 ExxonMobil released its 3Q earnings (at 8:00 AM ET) in which it acknowledged that it might have to de-book approximately 3.6 billion barrels of oil sand reserves and one billion barrels of other North American reserves.[68] Plaintiff alleges that this release partially corrected the alleged misrepresentations in ExxonMobil's 2015 10-K filed on February 24, 2016.

55. As shown in Exhibit 2, there is a statistically significant negative residual on a close to open basis (i.e., from market close on October 27, 2016 to market open on October 28, 2016) in ExxonMobil's stock (this announcement was released outside of trading hours, and as such, I use the close to open event window). This raises the question whether the allegedly corrective information represents new value-relevant public information such that the statistically significant negative residual return would suggest the alleged misrepresentations had a price impact. The answer is no.

[67] Affirmation of John Oleske in Opposition to ExxonMobil's Motion to Quash and in Support of the Office of the Attorney General's Cross-Motion to Compel dated June 2, 2017.
[68] "ExxonMobil Earns $2.7 Billion in Third Quarter of 2016," ExxonMobil press release, October 28, 2016.

56. As previously discussed and documented, the Complaint's allegations that the alleged truth was concealed by the purported misrepresentations concerning the Kearl Operation (and more generally the Canadian bitumen operations) and the Rocky Mountain Operation are based on Dr. Wright's analysis, which itself is based on information publicly available long before this alleged corrective disclosure. See Exhibits 3 and 4. Given that the alleged truth that was supposedly revealed by the 3Q earnings announcement was long known to the market, this information could not have possibly caused, consistent with efficient markets, a statistically significant negative residual return on that date.

57. Also, there was value-relevant non-fraud related information (i.e., under Plaintiff's theory would not have been corrective information) disclosed on October 28, 2016. The earnings announcement focused primarily on how the results reflected lower refining margins and commodity prices. Highlights of the earnings announcement included a 38% decrease in earnings from the third quarter of the prior year; a 45% decrease in capital and exploration expenditures from the third quarter of the prior year; an acquisition agreement with InterOil Corporation; and the opening and expansion of several production projects worldwide.[69]

58. Mr. Torchio's use of a two-day event window related to this alleged corrective disclosure is analytically improper. Mr. Torchio claims that when a particular disclosure continues to generate analyst commentary and additional news stories beyond the first event day and the excess returns are statistically significant in active trading, then one should consider lengthening the event window to include the effects of this continued market response.[70] But in an efficient market where new information is incorporated quickly into the stock price, these additional news

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[69] "ExxonMobil Earns $2.7 Billion in Third Quarter of 2016," ExxonMobil press release, October 28, 2016.
[70] Torchio Report at ¶153.

articles and analyst reports do not add new information that can be impounded in and impact ExxonMobil's stock price. Mr. Torchio himself appears to acknowledge this when he states in his report that "[if information] has already been disclosed and fully incorporated into the stock price, then such confounding information is unlikely to have caused any stock-price changes measured on the day of the corrective disclosure."[71] Consequently, analyst commentary and additional news stories that merely repeat information already publicly available should not be included in a properly specified event window.

59. Mr. Torchio attempts to support Plaintiff's use of a two-day event window for this alleged corrective disclosure by citing analyst reports and news articles issued from October 28, 2016 through October 31, 2016. But these analyst reports and news articles do not provide any new or incremental information. Instead, they merely reiterate and comment on previously disclosed information from ExxonMobil's Q3 earnings announcement. I have conducted a thorough study of those materials and concluded, as shown below in Exhibit 5, that each contains information that had been disclosed previously. Given the lack of new information during this two-day event window, Mr. Torchio's use of a two-day event window for this alleged corrective disclosure is inappropriate.[72] As discussed earlier, by using a two-day event window or longer event window than appropriate, Mr. Torchio may have distorted statistical significances of price movements, incorporating unrelated price movements and showing purported statistical price movement when none exists.

[71] *Id.* at ¶148.

[72] Mr. Torchio states that he analyzes the two earnings announcements, October 28 - 31, 2016 and January 31 - February 1, 2017, to "provide evidence of a cause-and-effect relationship on [those] potential corrective disclosure dates." *See* Torchio Report at ¶73. Mr. Torchio employs a two-day event window to support a cause-and-effect relationship and finds that the two-day event window is statistically significant for October 28 - 31, 2016.

Exhibit 5

The Analyst Reports and News Articles Mr. Torchio Uses to Justify a Two-Day Event Window All Contain Information Previously Publicly Available

October 28, 2016 - October 31, 2016

#	Date	Source	Title	Summary Quote	New or Incremental Information Provided?
1	10/28/2016	Bloomberg News	Exxon Facing Historic Reserves Reduction as Slump Persists	"Exxon Mobil Corp. warned it may be facing the biggest reserves revision in its history as production sank to a seven-year low and profit slid amid a prolonged slump in energy markets. About 3.6 billion barrels of reserves in the Canadian oil sands and the equivalent of another 1 billion barrels of oil in other North American fields may be in jeopardy if the average energy prices seen during the first nine months of 2016 persist, Exxon said in a statement on Friday. That would equate to 19 percent of Exxon's reserves and would be the largest debooking since the 1999 merger that created the company in its modern form."	No
2	10/28/2016[1]	The New York Times	Exxon Concedes It May Need to Declare Lower Value for Oil in Ground	"Exxon Mobil, in a concession to market and regulatory pressures, said Friday that it might be forced to write down the value of some of its oil and gas assets in Canada and elsewhere if energy prices remain low through the end of the year. The announcement, which accompanied the company's release of another quarter of lackluster earnings, was an apparent reversal of Exxon Mobil's stance in recent years."	No
3	10/28/2016[2]	Wall Street Journal	Exxon Warns on Reserves as It Posts Lower Profit	"Exxon Mobil Corp. warned that it may be forced to eliminate almost 20% of its future oil and gas prospects, yielding to the sharp decline in global energy prices. Under investigation by the U.S. Securities and Exchange Commission and New York state over its accounting practices—and the impact of future climate change regulations on its business—Exxon on Friday disclosed that some 4.6 billion barrels of oil in its reserves, primarily in Canada, may be too expensive to tap."	No
4	10/28/2016	UBS	3Q EPS Beats on R&M Asset Sale Gain But Cash Flow and Production Below Expectations	"Key takeaways from 3Q16 results and the conference call: 1) expects FY16 capex to be closer to \$20-\$21 billion, well below original guidance of \$23.2bn; 2) made no change to its 2016 production growth range of ~4.0-4.2 MMBoed (flat YoY); 3) indicated that based on lower oil prices, it is at risk of debooking up to 4.6 BBoe of its 24.8 BBoe of proved reserves; 4) yesterday XOM announced a "significant" oil discovery at Owowo (27% w.i.) with potential resource of 0.5-1 BBbls offshore Nigeria; 5) offshore Guyana, the successful Liza-3 appraisal well results in the Stabroek block (45% w.i.) confirmed recoverable resources estimate of >1 BBoe (vs prior range of 0.8-1.4 BBoe). It is now drilling an exploration well at the Payara prospect ~10 miles northeast of Liza, with results expected in January; & 6) we lowered 2017-18E EPS from \$3.57/\$4.54 to \$3.36/\$4.44 on lower Upstream earnings forecasts."	No
5	10/28/2016	Wells Fargo	CVX/XOM: Post-Q3 Adjustments	"We reaffirm our Outperform rating on XOM... For Q3, XOM was in line with expectations... Both capex and opex continue to shift lower on efficiency improvements, general deflation and structural improvements. While reflation will likely come with an ultimate recovery in oil prices, we believe more than half of structural cost improvements within the upstream segments are sustainable for both CVX and XOM and the upstream space in general... 2016 Spending Set to Trend Below Guidance. Capex continues to trend lower than prior guidance, and we expect both CVX and XOM will underspend expectations for FY2016... Thoughts on Production Amid Reduced Spending. For both companies, major project start-ups and the continued ramp of U.S. unconventionals should help to offset production declines elsewhere... For XOM, we have assumed production will decline by roughly 3% in 2017 and an additional 1-2% in 2018. By our estimates, the continued ramp up in unconventional activity and major project start-ups should be insufficient to offset declines elsewhere."	No
6	10/30/2016	Credit Suisse	Same Deep Inventory, Impairment/Debooking Is Just Noise to Navigate	"Bottom Line: XOM is the same XOM as a quarter ago with great project execution/capital discipline, long lived assets and a list of low breakeven future portfolio choices... XOM's production should benefit from the startup of projects that have been already under construction... XOM's integrated downstream has value driven growth opportunities in chemicals and through improving the refining footprint. Cashflow should rise as projects are completed and commodity markets rebalance, but we still find the shares to be expensive. We view potential reserve debookings and impairments as noise that do not impact our future value of the shares."	No
7	10/31/2016	Bloomberg News	Exxon Downgraded to Neutral at Goldman; PT Lowered to \$93	"[Goldman Sachs analyst] Mehta lowered the target price from \$98 and said Exxon will trade at \$93 within a year. The target is 3.5% percent higher than the consensus average of \$89.86. Analysts lowered their consensus one-year target price for the stock by 0.5 percent in the past week. Forecasts range from \$74 to \$105."	No
8	10/31/2016	Barclays	Upstream Miss, Prefer SU and COP	"We think XOM's 3Q16 result will have a slightly negative impact on the shares' near-term performance. Results were relatively unimpressive – while headline EPS of \$0.63 beat consensus of \$0.58 and was in line with our \$0.63 est., when adjusting for the \$410 mn (related to IMO's asset sale gains) recognized in International Downstream, or ~\$0.10/share, the adjusted EPS would be slightly below the consensus... SEC probe: Expectedly, XOM emphasized that its practices are within bounds, as an ex., in addressing reported reserve levels, XOM noted that some of its Western Canada proved reserves could be reduced this year given the movement in commodity prices. Regarding its (lack of) asset impairments, XOM stood by its past assessments, with no additional clarity. We anticipate this issue could continue to be a slight overhang on the stock, since the initial news of the NY AG's probe, XOM shares have increased 3% vs. an avg. +12% for its American Major peers (9% ex. PBR). XOM has also still not addressed the rather high carrying cost of the XTO assets, and why these assets will not need a value write down."	No
9	10/31/2016	Evercore ISI	Results Below Expectations; Reserves De-Booking Possible; Buy XOM	"Results Below Expectation... The negative variance was driven by lower than expected upstream production and liquids realizations, as well as weaker domestic refining margins... 2016 Reserve De-bookings Possible – ExxonMobil management cautioned that, based on the current 25% decline Y/Y in oil priced on an SEC basis, the company may experience further reserve de-bookings for 2016 (including Canadian Oil Sands assets). In addition, management stated that if the current commodity environment persists, reserves associated with end of field life production for other North American operations may also be impacted... ExxonMobil appears likely to spend \$20-21 B in 2016 which compares to earlier estimates of \$23 B. Spending will likely remain near current levels during 2017-2018... Management noted that the de-bookings of assets which are currently producing will not impact operations or total company production growth estimates. In addition, it was noted that these assets would potentially be rebooked in the future when price levels recover or when future operating or cost efficiencies are implemented"	No
10	10/31/2016	Jefferies	Impairments Imminent	"XOM 3Q16 adjusted EPS of \$0.54 was in-line with our estimate but missed the consensus of \$0.58. The company indicated that in the current oil price environment it may not be able to recognize proved reserves at certain North American operations, including its Canadian oil sands operations. About 19% of 2015 proved reserves are at risk"	No
11	10/31/2016	Morgan Stanley	3Q16: Missed and Likely Impaired	"Earnings and production miss expectations. FY16 production guidance reiterated on lowered capex. Management dimensions potential YE reserve write-downs and details book value impairment assessment process... XOM noted that the same [Kearl and other North American assets] reserves would be eligible to be rebooked and that potential write-downs would have no impact on operations and on our price forecast would return. Separately, in connection with its annual budgeting process, XOM plans to perform an assessment of the balance sheet value of its major long-life assets for potential impairments. The commodity deck under which this assessment is different from SEC-standard one, and is consistent with that used internally for investment planning purpose... We believe major write downs are unlikely, given a more constructive commodity price outlook relative to a year ago, better than expected efficiencies capture in the course of the year (see lower capex), and general conservatism of XOM's initial resource and value estimates. However, we believe both impairment and write-down risks are overhangs, particularly given relatively richer valuation vs peers."	No
12	10/31/2016	RBC Capital Markets	The Only Free Cash Flow Around	"XOM's free cash flow continues to be distorted by negative working capital impacts, but we see the company very close to dividend coverage in 2016 adjusting for this. Nigeria downtime was surprisingly large during 3Q16 and potential reserve write-downs at Kearl are somewhat concerning, but we still like XOM as the best-positioned major for the current environment."	No

Exhibit 5
The Analyst Reports and News Articles Mr. Torchio Uses to Justify a Two-Day Event Window All Contain Information Previously Publicly Available
October 28, 2016 - October 31, 2016

#	Date	Source	Title	Summary Quote	New or Incremental Information Provided?
13	10/31/2016	Simmons & Co.	Extent of Premium Valuation Becoming More Difficult to Sustain	"This was another tough quarter for XOM, characterized by a cash flow miss and disappointing upstream profitability... Capex is trending substantially below initial 2016 guidance of $23.2B (-25% y/y), as XOM confirmed on the call that a more reasonable range is now $20B to $21B. We believe the very low end of this range is probable, reflecting at least a 36% y/y decline for the full year... In an apparent departure from peers, XOM is reloading its exploration hopper, investing counter-cyclically in large scale seismic acquisition, perhaps emboldened by their massive Guyana discovery... A Word on Impairment Hullabaloo: We felt XOM did a nice job on the call of mitigating confusion around reserve write downs and asset impairments, a topic that has received too much press attention in our view. XOM clarified that they have already taken proved reserve writedowns, and they flagged that further write downs are likely this year. This should not be a surprise to anybody, as these revisions are based on a 12 month historical pricing basis, calculated annually, consistent with SEC reporting standards. Asset impairments, on the other hand, have not been taken this down-cycle by XOM in substantial measure. Impairment testing is conducting using long-term commodity price assumptions, consistent with those that management uses to evaluate investment opportunities and typically reasonably consistent with price forecasts published by 3rd parties. XOM did not book asset impairments at the end of 2015, as they were unnecessary per then long-term cash flow analysis. However, they will again conduct impairment testing during 4Q of this year in light of YTD commodity price weakness, as one would expect. If they need to impair assets, they will do so then. They very well may. In our view, the investigation into XOM's accounting practices lacks substance."	No

Notes:
[1] According to *The New York Times*, this article also appeared in print on October 29, 2016 in the New York edition with the headline "Exxon Concedes Drop in Value of Its Reserves," which is the version of the article Mr. Torchio relies upon. This article, however, was first published online on October 28, 2016.
[2] According to the *Wall Street Journal*, the article also appeared in the October 29, 2016 print edition as "In Shift, Exxon Signals Energy Reserves at Risk," which is the version of the article Mr. Torchio relies upon. This article, however, was first published online on October 28, 2016.
Sources:
[1] Carroll, Joe, "Exxon Facing Historic Reserves Reduction as Slump Persists," *Bloomberg News*, October 28, 2016
[2] Krauss, Clifford, "Exxon Concedes It May Need to Declare Lower Value for Oil in Ground," *The New York Times*, October 28, 2016
[3] Olson, Bradley and Lynn Cook, "Exxon Warns on Reserves as It Posts Lower Profit," *Wall Street Journal*, October 28, 2016
[4] UBS, "3Q EPS Beats on R&M Asset Sale Gain But Cash Flow and Production Below Expectations," October 28, 2016
[5] Wells Fargo, "CVX/XOM: Post-Q3 Adjustments," October 28, 2016
[6] Credit Suisse, "Same Deep Inventory, Impairment/Debooking Is Just Noise to Navigate," October 30, 2016
[7] "Exxon Downgraded to Neutral at Goldman; PT Lowered to $93," *Bloomberg News*, October 31, 2016
[8] Barclays, "Upstream Miss, Prefer SU and COP," October 31, 2016
[9] Evercore ISI, "Results Below Expectations; Reserves De-Booking Possible; Buy XOM," October 31, 2016
[10] Jefferies, "Impairments Imminent," October 31, 2016
[11] Morgan Stanley, "3Q16: Missed and Likely Impaired," October 31, 2016
[12] RBC Capital Markets, "The Only Free Cash Flow Around," October 31, 2016
[13] Simmons & Co., "Extent of Premium Valuation Becoming More Difficult to Sustain," October 31, 2016

F. Alleged Corrective Disclosure #6 – UBS Downgrade (01/19/2017)

60. The Complaint alleges that the publication of a UBS analyst report on January 18, 2017 (at 5:30 PM ET) was a corrective disclosure.[73] In the report, UBS downgraded ExxonMobil to "sell" and reduced its price target from $86 to $77. According to the Complaint, UBS cited "Exxon's 'risk of de-booking up to 4.6 of its 24.8 BBoe of proved reserves' [and] noted that [this] de-booking might "prompt investor concerns [that] XOM may need to make [another] large acquisition." Plaintiff asserts this "partially corrected certain of Defendants' prior [misrepresentations]."[74]

[73] The timestamp for the UBS downgrade of ExxonMobil to sell is based on the first news release of the UBS analyst report. This is consistent with the Complaint which states that the downgrade occurred after trading hours on January 18, 2017. *See* "Exxon Mobil gets downgrade from UBS," *Dow Jones Newswires,* January 18, 2017 *and* UBS, "ExxonMobil Corp.: Growth, Yield, ROCE and FCF No Longer Warrant Material Premium; Reducing Rating to Sell," January 18, 2017.
[74] Complaint at ¶¶443-444.

61. Given that UBS released its report after markets closed on January 18, 2017, the relevant window when conducting the event study is the close to open event window (i.e., from market close on January 18, 2017 to market open on January 19, 2017). As can be seen in Exhibit 2, there is no statistically significant residual return during this event window.

62. Equally important, the UBS Report simply did not provide any new incremental information to the market but rather summarized the ExxonMobil disclosures made on October 28, 2016. Again, the mere repetition of previously disclosed information cannot affect the price movement of ExxonMobil's stock in an efficient market.

G. Alleged Corrective Disclosure #7 – 4Q 2016 Earnings Announcement (01/31/2017)

63. Plaintiff claims that the final alleged corrective disclosure occurred on January 31, 2017 (at 8:00 AM ET) with the release of earnings for the quarter ending December 31, 2016. The earnings detailed that ExxonMobil would be taking an impairment charge of about $2 billion related to its Rocky Mountain Operation and that it planned to de-book the Kearl Operation reserves in the following weeks. Plaintiff asserts that "[a]nalysts and market commentators reacted strongly" and "negatively" to ExxonMobil's earnings results and that "[o]ver the two trading days following… investors also reacted strongly, causing a significant drop (after considering market and peer-group factors) in the price of Exxon's common stock."[75] Plaintiff alleges this disclosure "partially corrected certain of Defendants' prior [misrepresentations]" related to misrepresentations contained in ExxonMobil's 2015 10-K.[76]

[75] *Id.* at ¶¶449-452.
[76] *Id.* at ¶448.

64. Given that ExxonMobil released its earnings before markets opened on January 31, 2017, the relevant event window when conducting the event study is a close to open window (i.e., from market close on January 30, 2017 to market open on January 31, 2017). As can be seen in Exhibit 2, there is no statistically significant residual return during this event window.

65. Mr. Torchio once again uses a two-day event window. Again, such an approach is inappropriate. A two-day event window is justified only if there is new or incremental information released following a corrective disclosure. In his report, Mr. Torchio supports Plaintiff's two-day event window for this alleged corrective disclosure by citing analyst reports and news articles issued from January 31, 2017 through February 1, 2017. Once again, these analyst reports and news articles do not provide new or incremental information. Rather, they reiterate and comment on previously disclosed information. I have conducted a thorough study of those materials and concluded, as shown below in Exhibit 6, that each contains information that had been disclosed previously. Given the lack of new information during this two-day event window, the use of a two-day event window for this alleged corrective disclosure is inappropriate.[77] Similar to the October 28, 2016 alleged corrective disclosure, using a two-day event window or longer event window than appropriate, may have distorted statistical significances of price movements, incorporating unrelated price movements and showing purported statistical price movement where none exists.

[77] Mr. Torchio states that he analyzes the two earnings announcements, October 28 - 31, 2016 and January 31 - February 1, 2017, to "provide evidence of a cause-and-effect relationship on [those] potential corrective disclosure dates." *See* Torchio Report at ¶73. Mr. Torchio employs a two-day event window to support a cause-and-effect relationship and finds that the two-day event window is statistically significant for January 31 - February 1, 2017. However, he finds that January 31, 2017 and February 1, 2017 individually are not statistically significant. *See* Torchio Report at ¶¶ 88–89.

Exhibit 6

The Analyst Reports and News Articles Mr. Torchio Uses to Justify a Two-Day Event Window All Contain Information Previously Publicly Available

January 31, 2017 - February 1, 2017

#	Date	Source	Title	Summary Quote	New or Incremental Information Provided?
1	1/31/2017	Bloomberg News	Exxon's Profit Miss Shows No One Immune From Market Ravages	"Exxon Mobil Corp.'s biggest profit miss in at least a decade is the starkest sign yet that major oil explorers remain mired in the deepest market slump in a generation. After resisting the industry trend of discounting the value of oil and natural gas fields that turned into money-losers amid the 2 1/2-year market slump, Exxon capitulated on Tuesday and took a $2 billion hit on the value of some Rocky Mountain gas. Shares fell 2 percent to $83.16 at 11:03 a.m. in New York."	No
2	1/31/2017	Wall Street Journal	Exxon Profit Tumbles on Charge, Revenue Rises	"Exxon Mobil Corp. said Tuesday it wrote down the value of more than $2 billion in U.S. assets, departing from decades-long practice amid an investigation by securities regulators, as the world's largest publicly traded oil company posted its lowest yearly earnings in 20 years. The move follows an investigation begun by the U.S. Securities and Exchange Commission in August over Exxon's accounting practices and how the company values its future oil and gas wells, or reserves. The probe also sought information about how Exxon weighs the potential impact that climate-change regulations could have on its business, The Wall Street Journal reported in October."	No
3	1/31/2017	RBC Capital Markets	A Good (Bad) Year	"We believe 2016 was a better year for XOM than investors have given it credit for, with capex and shareholder distributions being more than covered by cash flow. XOM surprised some with a planned sequential increase in capex, but we like this on a counter-cyclical basis and think the cash flow profile of the business supports it. New Permian position provides a sizable asset to XOM's portfolio. XOM's revealed new details on its December Permian acquisition. Guyana prospects continue to be evaluated."	No
4	1/31/2017	Wells Fargo	Higher Vols And Share Count--Modest Val Range And EPS Adjs	"We maintain our Market Perform rating on XOM. We are tightening our valuation range slightly to $88-$93 from $87-$93 after adjusting for Q4 2016's results and flow through items, the anticipated impacts of the recently announced Delaware Basin acquisition, the elimination of incremental share repurchases in calendar 2017, and revisions to our 2019 EPS estimate. We have increased our production volume forecast through 2019 following better than expected Q4 2016 volumes and a higher growth rate for unconventional production. Capex Headed Higher. Upstream capex will rise by nearly 20%. While some may interpret this as a negative, in our view, XOM's Upstream capex had declined to a level that was unlikely to sustain the company's current production volumes, thus higher capex appeared inevitable. Reserves Update with 10-K. We expect XOM will report disappointing reserve replacement in its 2016 10-K filing. While the $2.0 billion write-down of dry gas assets was a separate event from determining reserves, we do believe it is a good indicator of the challenges to grow reserves in a low-price environment."	No
5	2/1/2017	Barclays	Disappointing "Clean" EPS and Production Performance"	"We think XOM's 4Q16 result will have a negative impact on the shares' near-term performance, following the N.A. gas asset impairment, soft 4Q16 production, and hazy 4Q16 EPS miss. Impairments & Reserves: Investors were likely at least somewhat surprised by the ~$2 bn asset impairment, especially considering XOM's prior unchanged stance on impairments as of the 3Q16 earnings update following the launch of the SEC's probe... The impairments were most mostly related to dry gas operations with undeveloped acreage in the Rocky Mountain region... As noted previously, proved reserves will likely be reduced once announced in the near term, specifically related to Western Canada assets. However, the shift of up to 4.6 bboe is expected to be partially offset by some additions. More importantly, since the market does not believe last year's market will represent the long-term average for oil prices, we don't think investors will be too alarmed by the proved reserve decline."	No
6	2/1/2017	Credit Suisse	Disclosure Should Improve, XOM Feeling Good About the Next Wave of Investment	"Even in the 10-Q at 3Q16, XOM lumped 19% of cashflow into "all other items" – disclosure should be more granular... On the reinvestment side of the ledger, the recently acquired shale assets [by Exxon] could grow to 350kbd over time. XOM produced 4.1MBD in 2016 with a 3% mitigated base decline. Hence, this shale growth could help offset 3years of decline. Aside from shale, XOM also has lower cost resources to develop e.g. in Guyana, Papua New Guinea, Aspen solvent-assisted SAGD in-situ oilsands (subject to BAT), Romania, and has downstream."	No
7	2/1/2017	Evercore ISI	Results In-line; Overweight Big Oils	"ExxonMobil's 4Q adjusted EPS was $0.71/shr., in line with consensus estimates at $0.70/shr. The negative impacts of weaker than expected liquids realizations, downstream and chemical margins, were offset by a favorable non-US tax item which we estimate benefited the quarter by +0.15/shr. Non-operating items in 4Q included impairments (+$0.49) and gains from asset sales (-$0.18)... ExxonMobil's 2017 budget was set at $22 B. While this represents a 14% increase vs. 2016 spending of $19.3 B, the original budget was $23.3B last year. The company may decrease spending further, in our view... Earlier this month ExxonMobil announced the acquisition of properties owned by the Bass family, expected to add estimated resources of 3.4 BBOE (75% liquids) within the Delaware Basin of the Permian."	No
8	2/1/2017	Jefferies	Joining the Short Cycle Trend	"XOM 4Q16 adjusted EPS of $0.89 included positive one-time items, which if excluded likely means earnings missed consensus. The company is guiding for $22b of capital spending in 2017. The company expects to add 15 rigs for development of its recent acquisition of 250k acres in the Permian Basin (primarily Delaware) for an initial $5.6b. No financial impairment on oil sands. XOM recorded a $2.0b impairment on dry natural gas assets in the Rockies, but there was no financial impairment on its Canadian oil sands assets."	No
9	2/1/2017	Simmons & Co.	4Q'16 Earnings - We Remain on the Sidelines	"No change to our thesis. While XOM offers unmatched financial resilience and execution capability, and while there are clearly evolving positives of the story (Permian, Guyana), we continue to believe these merits are fully reflected in premium valuation. The extent of this premium will be difficult to sustain, in our view, particularly as the energy cycle inflects."	No

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66. Also, once again, the Complaint's allegation that the alleged truth was concealed by the purported misrepresentations concerning the Kearl Operations (and more generally the Canadian bitumen operations) and the Rocky Mountain dry gas operations is based on Dr. Wright's analysis, which is based on information publicly available long before this alleged corrective disclosure. As discussed and demonstrated earlier for the July 29, 2016, October 28, 2016, and January 19, 2017 alleged corrective disclosures, the alleged truth that was supposedly revealed by

this announcement was long known to the market. Accordingly, this information could simply not have caused, consistent with efficient markets, a stock price reaction during this event window.

VIII. Conclusion

67. As detailed above, none of the alleged misrepresentations resulted in a positive and statistically significant stock price reaction. Furthermore, five of the seven purported corrective disclosure dates experienced no statistically significant price reaction, including all of the disclosures related to the allegations concerning how ExxonMobil described its use of carbon proxy costs. For the other two purported corrective disclosures (July 29, 2016 and October 28, 2016) which pertain to reserves de-booking and asset impairment, the information that purportedly corrected Defendants' alleged misrepresentations had been readily available to the market long before these disclosures. As a result, the alleged corrective information disclosed on those dates were already impounded into ExxonMobil's stock price and thus could not have had a price impact. Based on these findings, I have concluded that neither the alleged misrepresentations nor their purported correction had a price impact on ExxonMobil's stock.

Respectfully submitted,

Allen Ferrell, Ph.D.

February 1, 2019

Date

Appendix A

November, 2018

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CURRENT POSITIONS

Greenfield Professor of Securities Law, Harvard Law School

National Bureau of Economic Research, Research Associate

Member of Editorial Board, Journal of Financial Perspectives

Fellow, Columbia University's Program on the Law and Economics of Capital Markets

Faculty Associate, Kennedy School of Government

Research Associate, European Corporate Governance Institute

EDUCATION

Massachusetts Institute of Technology, Ph.D. in Economics, 2005
Fields in econometrics and finance

Harvard Law School, J.D., 1995, *Magna Cum Laude*

- Recipient of the *Sears Prize* (award given to the two students with the highest grades)
- Editor, *Harvard Law Review*

Brown University, B.A. and M.A., 1992, *Magna Cum Laude*

PREVIOUS POSITIONS

Harvard University Fellow
Harvard Law School, 1997

Law Clerk, Justice Anthony M. Kennedy
Supreme Court of the United States; 1996 Term

Law Clerk, Honorable Laurence H. Silberman
United States Court of Appeals for the District of Columbia; 1995 Term

COURSES TAUGHT

Contracts
Corporate Finance
Law and Finance
Securities Litigation
Securities Regulation

REFEREE FOR FOLLOWING JOURNALS

American Law and Economics Review
Journal of Corporation Finance
Journal of Finance
Journal of Financial Perspectives
Journal of Law and Economics
Journal of Law, Economics and Organization
Journal of Legal Studies
Quarterly Journal of Economics

CONSULTING AREAS

Price Impact and Securities Damages, Valuation, Mergers & Acquisitions

Papers

"How Accurate are Matrix Bond Prices?" with Drew Roper & Yibai Shu, Working Paper (2018)

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"Shareholder Rights" *in* REPORT OF THE COMMITTEE ON CAPITAL MARKETS REGULATION (2007)

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J.P. Morgan, "3Q14 Earnings Preview," October 30, 2014

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Deutsche Bank, "Everything Comes Back in Style," October 31, 2014

J.P. Morgan, "3Q14 Quick Take - ALERT," October 31, 2014

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Appendix C

A. Event Study Methodology

1. For the purposes of my ExxonMobil event study analysis, I adopted Mr. Torchio's market model specifications. I regress ExxonMobil's stock price returns on the S&P 500 Total Return Index (to control for market movements) and the S&P Integrated Oil & Gas Total Return Index (to control for industry movements).

2. I run two variations of the event study. One variation uses an event window that compares the prior day close to the closing price on the day in which the event occurs ("close to close"). This approach is used for events that occur during trading hours. The other variation compares the prior day close to the opening price of the following day ("close to open"). This approach is used for any event occurring overnight. The event study that uses the close to close event window fully adopts Mr. Torchio's regression specifications and calculation methodology with the exception of including July 29, 2016 as an alleged corrective disclosure date. Plaintiff identified this additional date in the Supplemental Response and Objections to Interrogatory after Mr. Torchio filed his Expert Report.

3. The results of the close to close event window event study analysis are contained in Appendix C.1.A and C.1.B and the results of the close to open event window event study analysis are contained in Appendix C.2.A and C.2.B.

B. ExxonMobil Close to Close Event Study

i. ExxonMobil's Return

5. As the dependent variable of my regression model, I use ExxonMobil's dividend-adjusted returns. To compute a dividend-adjusted return, I use the following formula to calculate

ExxonMobil's daily return from ExxonMobil's daily closing price of ExxonMobil (Bloomberg ticker: XOM US Equity) and include any dividends on ex-dividend dates:

$$Close\ to\ Close\ Return_t = \frac{Close\ Price_t + Dividends_t}{Close\ Price_{t-1}} - 1$$

ii. Proxy for Market

6. Consistent with Mr. Torchio's model and methodology, I select the S&P 500 Total Return Index (Bloomberg ticker: SPTR Index and SPXT Index) as the proxy for price movements in the market ("market index").[1] I remove ExxonMobil's daily dividend-adjusted close to close return from the market index based on ExxonMobil's computed daily weights. The index return removing the effects of ExxonMobil's daily returns for each day is calculated as follows:[2]

$$Market\ Return_t = \frac{Market\ Index\ Return_t - ExxonMobil\ Weight_{t-1} \times ExxonMobil\ Div.Adj.Return_t}{1 - ExxonMobil\ Weight_{t-1}}$$

7. The daily weight of ExxonMobil in the S&P 500 Total Return Index is computed as the daily market capitalization of ExxonMobil divided by the daily market capitalization of the market index. The market capitalization of ExxonMobil and the market index is obtained from Bloomberg.

iii. Proxy for Industry

8. Consistent with Mr. Torchio's industry proxy and methodology, I select the S&P Integrated Oil & Gas Total Return Index (Bloomberg ticker: S5IOILTR) as the proxy for price movements in the oil and gas industry ("industry index"). I remove ExxonMobil's daily

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[1] I use the SPTR Index for close to close return calculations and the SPXT Index for close to open return calculations.

[2] For ExxonMobil's dividend adjusted return used to remove ExxonMobil from the market index, Mr. Torchio uses "XOM UN Equity." I adopt the same methodology.

dividend-adjusted return from the industry index based on daily ExxonMobil weights obtained from Bloomberg. I also remove the market return from the industry index.

iv. Estimation Period and Dummy Variable

9. Consistent with Mr. Torchio's regression methodology, I use a "rolling regression" technique to account for changes in volatility during the Class Period. For each date in the Class Period, a market model is estimated on the prior 252 trading days.

10. I also use a "dummy" variable to eliminate any price effects related to alleged misrepresentations (i.e., on alleged corrective disclosure dates). For the alleged corrective disclosure dates, I set the respective dummy variable to 1 (and for other days 0). For the following alleged corrective disclosure dates, I adopt all the dummy variables Mr. Torchio uses: November 9, 2015; January 20, 2016; August 10, 2016; October 28 – October 31, 2016; January 19, 2017; and January 31, 2017 – February 1, 2017. I also use a dummy variable for July 29, 2016, the additional alleged corrective disclosure date identified by the Plaintiff in the Supplemental Response and Objections to Interrogatory. These are the dates on which Plaintiff alleges ExxonMobil's stock price reacted to corrective disclosures revealed to the market.

C. ExxonMobil Close to Open Event Study

11. For the close to open event study, I use similar model specifications as the close to close event study. However, instead of computing close to close returns on ExxonMobil's stock price, the S&P 500 Total Return Index, and the S&P Integrated Oil & Gas Total Return Index, I compute close to open returns.

i. ExxonMobil's Return

12. To compute ExxonMobil's close to open return, I use the following formula:

$$Close\ to\ Open\ Return_t = \frac{Open\ Price_t + Dividends_t}{Close\ Price_{t-1}} - 1$$

ii. Proxy for Market

13. To compute the S&P 500 Total Return Index's close to open return, I use the following formula:

$$Close\ to\ Open\ Return_t = \frac{Open\ Price_t}{Close\ Price_{t-1}} - 1$$

14. I remove ExxonMobil's daily dividend-adjusted close to open return from the market index based on the same daily weights used in the close to close event study.

iii. Proxy for Industry

15. To compute close to open returns for the S&P Integrated Oil & Gas Total Return Index (Bloomberg ticker: S5IOILTR), I reconstruct the S&P Integrated Oil & Gas Total Return Index from the individual constituents' open and close prices and dividends on the ex-dividend dates.[3] I base the reconstruction of the index on the methodology provided in the "S&P Index Mathematics Methodology" and the "S&P U.S. Indices Methodology" white papers.[4] The index is weighted by float-adjusted market capitalization.

16. As shown in the formula below, I compute a daily index level for the open and the close prices by first taking the product of the price of each stock, the number of outstanding

[3] One year prior to the start of the Class Period and during the Class Period, the S&P Integrated Oil & Gas Total Return Index's constituents are ExxonMobil, Chevron, Occidental Petroleum, Murphy Oil, and Hess. By September 3, 2013, Murphy Oil is no longer a constituent of the index. By April 1, 2015, Hess is no longer a constituent of the index. I make adjustments to exclude Murphy Oil and Hess accordingly.

[4] *See* S&P Dow Jones Indices, "Index Mathematics Methodology," December 2018, at 6-7 and 20. *See also*, S&P Dow Jones Indices, "S&P U.S. Indices Methodology," January 2019, at 10.

shares per stock, and an "Investable Weight Factor" ("IWF"). I then sum this product across all index constituents and divide by a "divisor."[5,6,7]

$$Index\ Level_t = \frac{\sum_i Price_{i,t} * Shares\ Outstanding_{i,t} * IWF_{i,t}}{Divisor_t}$$

17. As shown in the formula below, I compute a daily index dividend level:[8]

$$Index\ Dividend\ Level_t = \frac{\sum_i Dividend_{i,t} * Shares\ Outstanding_{i,t}}{Divisor_t}$$

18. I then compute a daily total return for the index ("DTR") for the open and close with the following formula:

$$DTR_t = \frac{Index\ Level_t + Index\ Dividend\ Level_t}{Index\ Level_{t-1}} - 1$$

19. Next, I compute a total return index for the open and close with the following formula:

$$Total\ Return\ Index_t = Total\ Return\ Index_{t-1} * (1 + DTR_t)$$

20. Finally, to compute the S&P Integrated Oil & Gas Total Return Index close to open return, I use the following formula:

$$Close\ to\ Open\ Return_t = \frac{Open\ Price_t}{Close\ Price_{t-1}} - 1$$

21. I remove ExxonMobil's dividend-adjusted close to open return from the industry index's close to open return based on implied weights of ExxonMobil computed when

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[5] The price, shares outstanding, and divisor components for each constituent of the index are obtained from Bloomberg. The IWF for each constituent of the index are obtained from S&P Dow Jones Indices in quarterly snapshots during the Class Period.

[6] The IWF is the percentage of total share outstanding that are included in the index calculation. *See* S&P Dow Jones Indices, "Float Adjustment Methodology," April 2018.

[7] *See* S&P Dow Jones Indices, "Index Mathematics Methodology," December 2018, at 5. The index divisor "is adjusted to offset the change in market value of the index... [and] to provide a continuous measure of market valuation when faced with changes to the stocks included in the index [e.g., inclusion or deletion of stocks and corporate actions]."

[8] The dividend, shares outstanding, and divisor components for each constituent of the index are obtained from Bloomberg.

constructing the industry index. I also remove the close to open market return from the industry index's close to open return.

D. Extending ExxonMobil Event Study to the Oleske Affirmation

22. I extend the close to open event study to June 2, 2017, the date the Oleske Affirmation became public. I extend all the event study components, including ExxonMobil's stock price return, the S&P 500 Total Return Index's return, and the S&P Integrated Oil & Gas Total Return Index. I then apply the regression analysis to June 2, 2017 to determine if there were statistically significant residual returns on that day.

23. The results of the analysis are contained in Appendix C.2.B.

E. Imperial Oil Close to Open Event Study

24. I also conduct an event study on Imperial Oil to test whether the alleged corrective disclosure on July 29, 2016 is associated with a statistically significant price movement. I regress Imperial Oil's stock price returns on the S&P 500 Total Return Index (to control for market movements) and the S&P Integrated Oil & Gas Total Return Index (to control for industry movements).

25. To compute Imperial Oil's (Bloomberg ticker: IMO US Equity) close to open return, I use the following formula:

$$Close\ to\ Open\ Return_t = \frac{Open\ Price_t + Dividends_t}{Close\ Price_{t-1}} - 1$$

26. For the market index, I use the same market proxy, S&P 500 Total Return Index, and calculation methodology as the market index for the ExxonMobil close to open event study.

27. For the industry index, I use the same industry proxy, S&P Integrated Oil & Gas Total Return Index, and calculation methodology as the industry index for the ExxonMobil close to open event study.

28. The results of the analysis are contained in Appendix C.3.

Appendix C.1.A
Close to Close Event Study Regression Results for Alleged Misrepresentations

	[A] Timestamp	[B] Event	[C] Event Study Date	Close to Close Results: Actual Returns [D] ExxonMobil	[E] Market	[F] Industry	Coefficients [G] Intercept	[H] Market	[I] Industry	[J] Adj R-Squared	[K] Predicted Return	[L] Residual Return	[M] t-statistic	[N] Statistically Significant
1	3/31/14 4:34 PM	ExxonMobil release "Energy and Carbon – Managing the Risks" (the "MTR Report") and "Energy and Climate" which Plaintiff allege were false and misleading as it failed to disclose information on internal use of carbon proxy costs	4/1/2014	0.05%	0.73%	0.05%	0.00000	0.88766	0.60221	0.54927	0.24%	-0.18%	-0.30	No
2	7/31/14 11:00 AM	On an earnings call Defendant Rosenthal makes comments Plaintiff alleges suggest that he is aware of alleged fraudulent conduct underlying the facts he discussed[1]	7/31/2014	-4.17%	-1.94%	-2.00%	0.00005	0.87446	0.65127	0.48968	-1.73%	-2.44%	-3.99	[illegible]
3	2/23/15 9:00 AM	ExxonMobil releases a reserve report Plaintiff alleges was false and misleading because it failed to disclose omitted information on proxy costs	2/23/2015	-1.01%	-0.01%	-0.61%	-0.00019	0.92736	0.65112	0.76027	-0.42%	-0.59%	-1.11	No
4	2/25/15 4:26 PM	ExxonMobil releases 10-K Plaintiff alleges was false and misleading because it failed to disclose its use of private proxy costs in internal calculations[2]	2/26/2015	-1.06%	-0.11%	-1.62%	-0.00024	0.92609	0.65321	0.76022	-1.11%	0.05%	0.10	No
5	3/4/15 9:00 AM	ExxonMobil hosts analysts' meeting which Plaintiff alleges failed to disclose information about its private proxy costs	3/4/2015	-0.50%	-0.42%	0.12%	-0.00021	0.92255	0.65527	0.76205	-0.05%	-0.45%	-0.84	No
6	4/30/15 11:00 AM	ExxonMobil holds its first quarter earnings call which Plaintiff alleges failed to disclose information about its private proxy costs	4/30/2015	-0.57%	-1.02%	-0.47%	-0.00040	0.96096	0.63304	0.79142	-0.67%	0.10%	0.20	No
7	5/27/15 10:30 AM	ExxonMobil holds its annual shareholder's meeting which Plaintiff alleges failed to disclose information about its private proxy costs	5/27/2015	-0.28%	0.96%	-0.10%	-0.00038	0.98364	0.60875	0.77969	0.26%	-0.54%	-1.03	No
8	7/31/15 9:30 AM	ExxonMobil holds its second quarter earnings call which Plaintiff alleges failed to disclose information about its private proxy costs	7/31/2015	-4.58%	-0.15%	-4.13%	-0.00011	0.94615	0.61418	0.78029	-2.59%	-1.98%	-3.71	[illegible]
9	10/30/15 9:30 AM	ExxonMobil holds its third quarter earnings call which Plaintiff alleges failed to disclose information about its private proxy costs	10/30/2015	0.62%	-0.50%	0.96%	-0.00006	0.96371	0.59965	0.80707	0.39%	0.23%	0.38	No
10	2/2/16 8:00 AM 2/2/16 10:30 AM	ExxonMobil releases its 2015 financial statements and holds its fourth quarter earnings call which Plaintiff alleges failed to disclose information about steps being taken to account for impact of climate change[4]	2/2/2016	-2.23%	-1.86%	-4.00%	0.00008	0.92058	0.65352	0.80263	-3.10%	0.87%	1.30	No
11	2/19/16 1:00 PM	ExxonMobil issues "ExxonMobil Announces 2015 Reserves Additions" which Plaintiff alleges misled investors with regards to efforts taken to evaluate and account for the impact of climate change on reserve assets	2/19/2016	0.06%	0.01%	-0.21%	0.00039	0.87982	0.63262	0.76736	-0.09%	0.15%	0.21	No
12	2/24/16 4:09 PM	ExxonMobil releases its 2015 form 10-K which Plaintiff alleges misled investors with regard to the potential impact of climate change on assets[3]	2/25/2016	0.60%	1.17%	0.10%	0.00039	0.86293	0.61615	0.75683	0.39%	0.21%	0.28	No
13	3/1/16 8:49 PM 3/2/16 9:00 AM	ExxonMobil files prospectus with the SEC and holds its 2016 analysts' meeting which Plaintiff alleges failed to disclose information on the risks of climate change to assets[3]	3/2/2016	1.75%	0.40%	1.29%	0.00034	0.85872	0.61426	0.75499	0.93%	0.82%	1.08	No
14	3/30/16	ExxonMobil publishes its 2015 Corporate Citizenship Report which Plaintiff alleges failed to disclose information about its private proxy costs[2]	3/30/2016	-0.01%	0.45%	0.16%	0.00039	0.84627	0.59623	0.73576	0.25%	-0.26%	-0.33	No
15	4/13/16 10:09 AM	ExxonMobil files notice of shareholders' meeting and proxy statement with the SEC which Plaintiff alleges failed to disclose information about its private proxy costs[2]	4/13/2016	0.57%	1.03%	0.00%	0.00031	0.84546	0.58698	0.73417	0.30%	0.27%	0.34	No
16	4/29/16 8:00 AM 4/29/16 9:30 AM	ExxonMobil releases first quarter earnings and holds its earnings call which Plaintiff alleges contained misleading information with regards to reserve assets and the Canadian bitumen operations[4]	4/29/2016	0.42%	-0.52%	-0.04%	0.00035	0.84335	0.58090	0.73291	-0.12%	0.54%	0.69	No
17	5/12/16 11:01 AM	ExxonMobil holds its annual executive compensation conference call which Plaintiff alleges failed to disclose information on its private proxy costs	5/12/2016	0.97%	-0.03%	0.79%	0.00036	0.83012	0.58873	0.73844	0.50%	0.47%	0.61	No
18	5/25/16 10:30 AM	ExxonMobil holds its annual shareholders' meeting which Plaintiff alleges failed to disclose information on its private proxy costs	5/25/2016	0.66%	0.70%	1.22%	0.00041	0.81892	0.59551	0.73750	0.93%	-0.27%	-0.34	No
19	11/3/16 11:10 AM	ExxonMobil files its 10-Q form with the SEC which Plaintiff alleges failed to disclose information about its private proxy costs[2]	11/3/2016	0.25%	-0.42%	-0.10%	0.00030	0.71208	0.66130	0.71023	-0.06%	0.31%	0.44	No

Appendix C.1.A
Close to Close Event Study Regression Results for Alleged Misrepresentations

[A] The timestamp of the event of interest (various sources)
[B] Description of alleged misrepresentation or alleged corrective disclosure
[C] Date of the model. For events that occur after trading hours the event window of interest is the close to close period for the next day. Close to close for event study date t refers to the return from close on day t-1 to close on day t
[D] ExxonMobil's dividend adjusted stock return (source: Bloomberg)
[E] The market return equals the return on the S&P Total Return Index return after removing ExxonMobil's daily return based on its daily weight from the index (source: Bloomberg)
[F] The industry return equals the return on the S&P 500 Integrated Oil & Gas Sub Industry Total Return Index return after removing ExxonMobil's daily return based on its daily weight from the index (source: Bloomberg)
[G] Intercept from regression over prior 252 trading days
[H] Coefficient on market index from regression over prior 252 trading days
[I] Coefficient on net-of-market industry index from regression over prior 252 trading days
[J] Adjusted R-Squared from regression over prior 252 trading days
[K] Predicted return equals: [G] + [H] * [E] + ([I] * ([F] - [E]))
[L] Residual return equals: [D] - [K]
[M] t-statistic equals: [L] / standard error of the regression over prior 252 trading days
[N] The t-statistic is compared to +/- 1.96 to test for significance at the 95% confidence level

Notes:
[1] The Complaint quotes Defendant David S. Rosenthal's comments made on July 31, 2014 and states that '[these comments] provide a strong inference that Defendant Rosenthal was aware of - or severely reckless in failing to be aware of - the facts underlying the matters he discussed, which necessarily included the fraudulent conduct alleged herein (Complaint at ¶388).' For the purposes of my analysis, I have assumed that Plaintiff intended July 31, 2014 to be an alleged misrepresentations date.
[2] There is no available timestamp for the release of the Corporate Citizenship Report on March 30, 2016. The close to close residual return for the following day, March 31, 2016, is also not statistically significant.
[3] For SEC Filings the timestamp comes from the "Accepted" field on the SEC Edgar database
[4] For dates with multiple alleged misrepresentations that occur overnight and during the trading day, the close to close event window is employed to capture all the events at issue on the date.

Sources:
[1] "ExxonMobil Releases Reports to Shareholders on Managing Climate Risk," ExxonMobil press release, March 31, 2014
[2] S&P Capital IQ, "Exxon Mobil Corporation FQ2 2014 Earnings Call Transcripts," July 31, 2014
[3] "ExxonMobil 2014 Reserves Replacement Totals 104 Percent," ExxonMobil press release, February 23, 2015
[4] ExxonMobil Corp., Form 10-K for the Period Ending December 31, 2014 (filed February 25, 2015)
[5] "Exxon Mobil Corporation Presentation and Q&A Session Analyst Meeting," ExxonMobil, March 4, 2015
[6] S&P Capital IQ, "Exxon Mobil Corporation FQ1 2015 Earnings Call Transcripts," April 30, 2015
[7] S&P Capital IQ, "Exxon Mobil Corporation Shareholder/Analyst Call," May 27, 2015
[8] S&P Capital IQ, "Exxon Mobil Corporation FQ2 2015 Earnings Call Transcripts," July 31, 2015
[9] S&P Capital IQ, "Exxon Mobil Corporation FQ3 2015 Earnings Call Transcripts," October 30, 2015
[10] S&P Capital IQ, "Exxon Mobil Corporation FQ4 2015 Earnings Call Transcripts," February 2, 2016
[11] "ExxonMobil Announces 2015 Reserves Additions," ExxonMobil press release, February 19, 2016
[12] ExxonMobil Corp., Form 10-K for the Period Ending December 31, 2015 (filed February 24, 2016)
[13] ExxonMobil Corp., Form 424B2 (filed March 2, 2016); S&P Capital IQ, "Exxon Mobil Corporation Analyst/Investor Day," March 2, 2016
[14] "ExxonMobil 2015 Corporate Citizenship Report," ExxonMobil, March 30, 2016
[15] ExxonMobil Corp., Form DEF 14A (filed April 13, 2016)
[16] "ExxonMobil Earns $1.8 Billion in First Quarter of 2016," ExxonMobil press release, April 29, 2016; S&P Capital IQ, "Exxon Mobil Corporation Analyst/Investor Day," March 2, 2016
[17] S&P Capital IQ, "Exxon Mobil Corporation Special Call," May 12, 2016
[18] S&P Capital IQ, "Exxon Mobil Corporation Shareholder/Analyst Call," May 25, 2016
[19] ExxonMobil Corp., Form 10-Q for the Period Ending September 30, 2016 (filed November 3, 2016)

Appendix C.1.B
Close to Close Event Study Regression Results for Alleged Corrective Disclosures

				Close to Close Results										
				Actual Returns			Coefficients							
	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J] Adj	[K] Predicted	[L] Residual	[M]	[N] Statistically
	Timestamp	Event	Event Study Date	ExxonMobil	Market	Industry	Intercept	Market	Industry	R-Squared	Return	Return	t-statistic	Significant
1	11/5/15 12:05 PM	*The New York Times* publishes and article detailing the focus of the New York Attorney General's investigation concerning misrepresentations to investors about potential business risks of climate change[3]	11/5/2015	-1.36%	-0.07%	-1.76%	-0.00006	0.96243	0.60203	0.81035	-1.09%	-0.27%	-0.45	No
2	11/5/15 6:38 PM	*The Guardian* article alleged to be a corrective disclosure by the Plaintiff appears online for the first time[3]	11/6/2015	-0.40%	-0.02%	-0.61%	-0.00005	0.96357	0.60428	0.81133	-0.38%	-0.02%	-0.03	No
3	11/9/15 10:30 AM	*The Guardian* discloses focus of New York Attorney General's investigation concerning misrepresentations to investors about potential business risks of climate change[1]	11/9/2015	-2.12%	-0.94%	-1.34%	-0.00008	0.96278	0.60350	0.81140	-1.15%	-0.97%	-1.61	No
4	1/20/16 3:00 AM	*The Los Angeles Times* reveals that the California Attorney General is investigating ExxonMobil for potential securities fraud	1/20/2016	-4.21%	-1.10%	-3.08%	0.00006	0.91012	0.64241	0.78971	-2.26%	-1.95%	-2.94	[illegible]
5	7/29/16 8:00 AM	ExxonMobil reports EPS of $0.41, a miss of the consensus EPS of $0.64 and an upstream loss of $514 million	7/29/2016	-1.39%	0.19%	0.77%	0.00026	0.82659	0.59547	0.74188	0.53%	-1.92%	-2.48	[illegible]
6	8/9/16 Evening	*The Washington Post* publishes an Op-Ed regarding ExxonMobil's attempt to thwart state investigations and Environment and Energy Publishing LLC publishes an article on the investigations[1]	8/10/2016	-1.74%	-0.22%	-1.03%	0.00035	0.82065	0.58783	0.73460	-0.62%	-1.12%	-1.44	No
7	10/28/16 8:00 AM	ExxonMobil discloses potentially massive proved reserve de-booking	10/28/2016	-2.46%	-0.26%	2.95%	0.00027	0.71773	0.66370	0.71502	1.97%	-4.44%	-6.24	[illegible]
8	1/18/17 5:30 PM	UBS downgrades ExxonMobil to "sell"[2]	1/19/2017	-1.80%	-0.33%	-0.42%	0.00014	0.73370	0.61111	0.64575	-0.28%	-1.52%	-2.20	[illegible]
9	1/31/17 8:00 AM	ExxonMobil announces $2.03 billion asset impairment charge and confirms proved reserves de-booking	1/31/2017	-1.14%	-0.07%	-0.37%	0.00029	0.68147	0.57806	0.58405	-0.19%	-0.95%	-1.40	No
10	6/2/17 7:50 AM	The Oleske Affirmation is filed[3]	6/2/2017	-1.49%	0.40%	-0.84%	0.00010	0.84107	0.68450	0.64989	-0.50%	-0.98%	-1.76	No

[A] The timestamp of the event of interest (various sources)
[B] Description of alleged misrepresentation or alleged corrective disclosure
[C] Date of the model. For events that occur after trading hours the event window of interest is the close to close period for the next day. Close to close for event study date t refers to the return from close on day t-1 to close on day t
[D] ExxonMobil's dividend adjusted stock return (source: Bloomberg)
[E] The market return equals the return on the S&P Total Return Index return after removing ExxonMobil's daily return based on its daily weight from the index (source: Bloomberg)
[F] The industry return equals the return on the S&P 500 Integrated Oil & Gas Sub Industry Total Return Index return after removing ExxonMobil's daily return based on its daily weight from the index (source: Bloomberg)
[G] Intercept from regression over prior 252 trading days
[H] Coefficient on market index from regression over prior 252 trading days
[I] Coefficient on net-of-market industry index from regression over prior 252 trading days
[J] Adjusted R-Squared from regression over prior 252 trading days
[K] Predicted return equals: [G] + [H] * [E] + ([I] * ([F] - [E]))
[L] Residual return equals: [D] - [K]
[M] t-statistic equals: [L] / standard error of the regression over prior 252 trading days
[N] The t-statistic is compared to +/- 1.96 to test for significance at the 95% confidence level

Notes:
[1] November 9, 2015 and August 10, 2016 are ex-dividend dates. The returns have been adjusted to account for this.
[2] The timestamp for the UBS downgrade of ExxonMobil to sell is based on the first news release of the UBS analyst report. This is consistent with the Complaint which states that the downgrade occurred after trading hours on January 18, 2017.
[3] These events are not alleged corrective disclosures provided by Plaintiff.
[4] For SEC Filings the timestamp comes from the "Accepted" field on the SEC Edgar database.

Sources:

[1] Gillis, Justin and Krauss, Clifford, "ExxonMobil Mobil Under Investigation in New York Over Climate Statements,"*The New York Times*, November 5, 2015
[2] Goldenberg, Suzanne, "ExxonMobil under investigation over claims it lied about climate change risks,"*The Guardian*, November 5, 2015
[3] Goldenberg, Suzanne, "ExxonMobil under investigation over claims it lied about climate change risks,"*The Guardian*, November 9, 2015
[4] Penn, Ivan, "State Investigates Exxon Mobil on Climate Change; Kamala Harris Wants to Know Whether the Oil Company Lied to Investors About Risks,"*The Los Angeles Times*, January 20, 2016
[5] "ExxonMobil Earns $1.7 Billion in Second Quarter of 2016," ExxonMobil press release, July 29, 2016
[6] Warren, Elizabeth and Whitehouse, Sheldon, "Big Oil's Master Class in Rigging the System,"*Washington Post*, August 9, 2016; Hess, Hannah, "Dems Question Exxon Support of Carbon Tax, Call for Hearings,"*Energy and Environment News*, August 10, 2016
[7] "ExxonMobil Earns $2.7 Billion in Third Quarter of 2016," ExxonMobil press release, October 28, 2016
[8] UBS, "ExxonMobil Corp : Growth, Yield, ROCE and FCF No Longer Warrant Material Premium; Reducing Rating to Sell," January 18, 2017; "Exxon Mobil gets downgrade from UBS,"*Dow Jones Newswires*, January 18, 2017
[9] "ExxonMobil Earns $7.8 Billion in 2016; $1.7 Billion in During Fourth Quarter," ExxonMobil press release, January 31, 2017
[10] Affirmation of John Oleske in Opposition to ExxonMobil's Motion to Quash and in Support of the Office of the Attorney General's Cross-Motion to Compel dated June 2, 2017

Appendix C.2.A
Close to Open Event Study Regression Results for Alleged Misrepresentations

	[A]	[B]	[C]	Close to Open Results: Actual Returns [D]	[E]	[F]	Coefficients [G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
	Timestamp (ET)	Event	Event Study Date	ExxonMobil	Market	Industry	Intercept	Market	Industry	Adj R-Squared	Predicted Return	Residual Return	t-statistic	Statistically Significant
1	3/31/14 4:34 PM	ExxonMobil release "Energy and Carbon – Managing the Risks" (the "MTR Report") and "Energy and Climate" which Plaintiff allege were false and misleading as it failed to disclose information on internal use of carbon proxy costs	4/1/2014	-0.03%	0.10%	0.05%	-0.00016	1.23964	0.42659	0.40258	0.08%	-0.11%	-0.32	No
2	7/31/14 11:00 AM	On an earnings call Defendant Rosenthal makes comments Plaintiff alleges suggest that he is aware of alleged fraudulent conduct underlying the facts he discussed[1]	7/31/2014											
3	2/23/15 9:00 AM	ExxonMobil releases a reserve report Plaintiff alleges was false and misleading because it failed to disclose omitted information on proxy costs	2/23/2015	-0.73%	-0.01%	-0.88%	-0.00049	1.67198	0.53917	0.66949	-0.53%	-0.20%	-0.63	No
4	2/25/15 4:26 PM	ExxonMobil releases 10-K Plaintiff alleges was false and misleading because it failed to disclose its use of private proxy costs in internal calculations[2]	2/26/2015	-0.52%	0.03%	-0.82%	-0.00048	1.65963	0.53586	0.66311	-0.45%	-0.07%	-0.23	No
5	3/4/15 9:00 AM	ExxonMobil hosts analysts' meeting which Plaintiff alleges failed to disclose information about its private proxy costs	3/4/2015	0.39%	0.01%	0.24%	-0.00050	1.60369	0.55232	0.67753	0.10%	0.29%	0.91	No
6	4/30/15 11:00 AM	ExxonMobil holds its first quarter earnings call which Plaintiff alleges failed to disclose information about its private proxy costs	4/30/2015											
7	5/27/15 10:30 AM	ExxonMobil holds its annual shareholder's meeting which Plaintiff alleges failed to disclose information about its private proxy costs	5/27/2015											
8	7/31/15 9:30 AM	ExxonMobil holds its second quarter earnings call which Plaintiff alleges failed to disclose information about its private proxy costs	7/31/2015											
9	10/30/15 9:30 AM	ExxonMobil holds its third quarter earnings call which Plaintiff alleges failed to disclose information about its private proxy costs	10/30/2015											
10	2/2/16 8:00 AM 2/2/16 10:30 AM	ExxonMobil releases its 2015 financial statements and holds its fourth quarter earnings call which Plaintiff alleges failed to disclose information about steps being taken to account for impact of climate change[4]	2/2/2016											
11	2/19/16 1:00 PM	ExxonMobil issues "ExxonMobil Announces 2015 Reserves Additions" which Plaintiff alleges misled investors with regards to efforts taken to evaluate and account for the impact of climate change on reserve assets	2/19/2016											
12	2/24/16 4:09 PM	ExxonMobil releases its 2015 form 10-K which Plaintiff alleges misled investors wit regard to the potential impact of climate change on assets[3]	2/25/2016	0.05%	0.13%	0.49%	0.00033	0.90510	0.76497	0.87405	0.42%	-0.37%	-1.10	No
13	3/1/16 8:49 PM 3/2/16 9:00 AM	ExxonMobil files prospectus with the SEC and holds its 2016 analysts' meeting whic Plaintiff alleges failed to disclose information on the risks of climate change to assets[3]	3/2/2016	-0.41%	-0.06%	-0.91%	0.00021	0.88893	0.76273	0.87558	-0.68%	0.27%	0.81	No
14	3/30/16	ExxonMobil publishes its 2015 Corporate Citizenship Report which Plaintiff alleges failed to disclose information about its private proxy costs[3]	3/30/2016											
15	4/13/16 10:09 AM	ExxonMobil files notice of shareholders' meeting and proxy statement with the SEC which Plaintiff alleges failed to disclose information about its private proxy costs[3]	4/13/2016											
16	4/29/16 8:00 AM 4/29/16 9:30 AM	ExxonMobil releases first quarter earnings and holds its earnings call which Plaintiff alleges contained misleading information with regards to reserve assets and the Canadian bitumen operations[4]	4/29/2016											
17	5/12/16 11:01 AM	ExxonMobil holds its annual executive compensation conference call which Plaintiff alleges failed to disclose information on its private proxy costs	5/12/2016											
18	5/25/16 10:30 AM	ExxonMobil holds its annual shareholders' meeting which Plaintiff alleges failed to disclose information on its private proxy costs	5/25/2016											
19	11/3/16 11:10 AM	ExxonMobil files its 10-Q form with the SEC which Plaintiff alleges failed to disclos information about its private proxy costs[3]	11/3/2016											

Appendix C.2.A
Close to Open Event Study Regression Results for Alleged Misrepresentations

[A] The timestamp of the event of interest (various sources)
[B] Description of alleged misrepresentation or alleged corrective disclosure
[C] Date of the model. For events that occur after trading hours the event window of interest is the close to open period for the next day. Close to open for event study date t refers to the return from close on day t-1 to open on day t
[D] ExxonMobil's dividend adjusted stock return (source: Bloomberg)
[E] The market return equals the return on the S&P Total Return Index return after removing ExxonMobil's daily return based on its daily weight from the index (source: Bloomberg)
[F] The industry return equals the return on the S&P 500 Integrated Oil & Gas Sub Industry Total Return Index return after removing ExxonMobil's daily return based on its daily weight from the index. (source: Bloomberg)
[G] Intercept from regression over prior 252 trading days
[H] Coefficient on market index from regression over prior 252 trading days
[I] Coefficient on net-of-market industry index from regression over prior 252 trading days
[J] Adjusted R-Squared from regression over prior 252 trading days
[K] Predicted return equals: [G] + [H] * [E] + ([I] * ([F] - [E]))
[L] Residual return equals: [D] - [K]
[M] t-statistic equals: [L] / standard error of the regression over prior 252 trading days
[N] The t-statistic is compared to +/- 1.96 to test for significance at the 95% confidence level

Notes:

[1] The Complaint quotes Defendant David S. Rosenthal's comments made on July 31, 2014 and states that '[these comments] provide a strong inference that Defendant Rosenthal was aware of - or severely reckless in failing to be aware of - the facts underlying the matters he discussed, which necessarily included the fraudulent conduct alleged herein (Complaint at ¶388).'' For the purposes of my analysis, I have assumed that Plaintiff intended July 31, 2014 to be an alleged misrepresentations date.
[2] There is no available timestamp for the release of the Corporate Citizenship Report on March 30, 2016. The close to close residual return for the following day, March 31, 2016, is also not statistically significant.
[3] For SEC Filings the timestamp comes from the "Accepted" field on the SEC Edgar database.
[4] For dates with multiple alleged misrepresentations that occur overnight and during the trading day, the close to close event window is employed to capture all the events at issue on the date.

Sources:

[1] "ExxonMobil Releases Reports to Shareholders on Managing Climate Risk," ExxonMobil press release, March 31, 2014
[2] S&P Capital IQ, "Exxon Mobil Corporation FQ2 2014 Earnings Call Transcripts," July 31, 2014
[3] "ExxonMobil 2014 Reserves Replacement Totals 104 Percent," ExxonMobil press release, February 23, 2015
[4] ExxonMobil Corp., Form 10-K for the Period Ending December 31, 2014 (filed February 25, 2015)
[5] "Exxon Mobil Corporation Presentation and Q&A Session Analyst Meeting," ExxonMobil, March 4, 2015
[6] S&P Capital IQ, "Exxon Mobil Corporation FQ1 2015 Earnings Call Transcripts," April 30, 2015
[7] S&P Capital IQ, "Exxon Mobil Corporation Shareholder/Analyst Call," May 27, 2015
[8] S&P Capital IQ, "Exxon Mobil Corporation FQ2 2015 Earnings Call Transcripts," July 31, 2015
[9] S&P Capital IQ, "Exxon Mobil Corporation FQ3 2015 Earnings Call Transcripts," October 30, 2015
[10] S&P Capital IQ, "Exxon Mobil Corporation FQ4 2015 Earnings Call Transcripts," February 2, 2016
[11] "ExxonMobil Announces 2015 Reserves Additons," ExxonMobil press release, February 19, 2016
[12] ExxonMobil Corp., Form 10-K for the Period Ending December 31, 2015 (filed February 24, 2016)
[13] ExxonMobil Corp., Form 424B2 (filed March 2, 2016); S&P Capital IQ, "Exxon Mobil Corporation Analyst/Investor Day," March 2, 2016
[14] "ExxonMobil 2015 Corporate Citizenship Report," ExxonMobil, March 30, 2016
[15] ExxonMobil Corp., Form DEF 14A (filed April 13, 2016)
[16] "ExxonMobil Earns $1.8 Billion in First Quarter of 2016," ExxonMobil press release, April 29, 2016; S&P Capital IQ, "Exxon Mobil Corporation Analyst/Investor Day," March 2, 2016
[17] S&P Capital IQ, "Exxon Mobil Corporation Special Call," May 12, 2016
[18] S&P Capital IQ, "Exxon Mobil Corporation Shareholder/Analyst Call," May 25, 2016
[19] ExxonMobil Corp., Form 10-Q for the Period Ending September 30, 2016 (filed November 3, 2016)

Appendix C.2.B
Close to Open Event Study Regression Results for Alleged Corrective Disclosures

	[A]	[B]	[C]	Close to Open Results: Actual Returns [D]	Actual Returns [E]	Actual Returns [F]	Coefficients [G]	Coefficients [H]	Coefficients [I]	[J]	[K]	[L]	[M]	[N]
	Timestamp (ET)	Event	Event Study Date	ExxonMobil	Market	Industry	Intercept	Market	Industry	Adj R-Squared	Predicted Return	Residual Return	t-statistic	Statistically Significant
1	11/5/15 12:05 PM	*The New York Times* publishes and article detailing the focus of the New York Attorney General's investigation concerning misrepresentations to investors about potential business risks of climate change[2]	11/5/2015											
2	11/5/15 6:38 PM	*The Guardian* article alleged to be a corrective disclosure by the Plaintiff appears online for the first time[3]	11/6/2015	-1.04%	-0.03%	-1.03%	0.00021	1.41827	0.73475	0.82343	-0.76%	-0.28%	-0.80	No
3	11/9/15 10:30 AM	*The Guardian* discloses focus of New York Attorney General's investigation concerning misrepresentations to investors about potential business risks of climate change[1]	11/9/2015											
4	1/20/16 3:00 AM	*The Los Angeles Times* reveals that the California Attorney General is investigating ExxonMobil for potential securities fraud	1/20/2016	-1.74%	-0.23%	-1.88%	0.00027	1.21292	0.76509	0.86335	-1.51%	-0.23%	-0.70	No
5	7/29/16 8:00 AM	ExxonMobil reports EPS of $0.41, a miss of the consensus EPS of $0.64 and an upstream loss of $514 million	7/29/2016	-2.87%	0.00%	-1.14%	-0.00011	0.53382	0.78554	0.89043	-0.91%	-1.96%	-6.12	-
6	8/9/16 Evening	*The Washington Post* publishes an Op-Ed regarding ExxonMobil's attempt to thwart state investigations and Environment and Energy Publishing LLC publishes an article on the investigations[1]	8/10/2016	-0.19%	0.09%	0.45%	-0.00011	0.50956	0.78760	0.89715	0.31%	-0.51%	-1.60	No
7	10/28/16 8:00 AM	ExxonMobil discloses potentially massive proved reserve de-booking	10/28/2016	-1.89%	0.00%	1.34%	-0.00033	0.67419	0.72606	0.88825	0.94%	-2.83%	-10.58	-
8	1/18/17 5:30 PM	UBS downgrades ExxonMobil to "sell"[2]	1/19/2017	-0.36%	0.01%	0.01%	-0.00011	0.82175	0.69326	0.87397	-0.01%	-0.35%	-1.36	No
9	1/31/17 8:00 AM	ExxonMobil announces $2.03 billion asset impairment charge and confirms proved reserves de-booking	1/31/2017	0.21%	-0.31%	0.05%	-0.00007	0.83319	0.67310	0.84387	-0.02%	0.24%	0.90	No
10	6/2/17 7:50 AM	The Oleske Affirmation is filed[3]	6/2/2017	-0.14%	0.05%	-0.54%	0.00010	0.92409	0.59820	0.77147	-0.29%	0.16%	0.59	No

[A] The timestamp of the event of interest (various sources)
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[C] Date of the model. For events that occur after trading hours the event window of interest is the close to open period for the next day. Close to open for event study date t refers to the return from close on day t-1 to open on day t.
[D] ExxonMobil's dividend adjusted stock return (source: Bloomberg)
[E] The market return equals the return on the S&P Total Return Index return after removing ExxonMobil's daily return based on its daily weight from the index (source: Bloomberg).
[F] The industry return equals the return on the S&P 500 Integrated Oil & Gas Sub Industry Total Return Index return after removing ExxonMobil's daily return based on its daily weight from the index (source: Bloomberg)
[G] Intercept from regression over prior 252 trading days.
[H] Coefficient on market index from regression over prior 252 trading days
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[M] t-statistic equals: [L] / standard error of the regression over prior 252 trading days
[N] The t-statistic is compared to +/- 1.96 to test for significance at the 95% confidence level.

Notes:
[1] November 9, 2015 and August 10, 2016 are ex-dividend dates. The returns have been adjusted to account for this
[2] The timestamp for the UBS downgrade of ExxonMobil to sell is based on the first news release of the UBS analyst report. This is consistent with the Complaint which states that the downgrade occurred after trading hours on January 18, 2017
[3] These events are not alleged corrective disclosures provided by Plaintiff.
[4] For SEC Filings the timestamp comes from the "Accepted" field on the SEC Edgar database.

Sources:
[1] Gillis, Justin and Krauss, Clifford, "ExxonMobil Mobil Under Investigation in New York Over Climate Statements,*The New York Times*, November 5, 2015
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[10] Affirmation of John Oleske in Opposition to ExxonMobil's Motion to Quash and in Support of the Office of the Attorney General's Cross-Motion to Compel dated June 2, 2017.

Appendix C.3
Imperial Oil Close to Open Event Study Regression Results

				Close to Open Results										
				Actual Returns			Coefficients							
	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J] Adj	[K] Predicted	[L] Residual	[M]	[N] Statistically
	Timestamp (ET)	Event	Event Study Date	Imperial Oil	Market	Industry	Intercept	Market	Industry	R-Squared	Return	Return	t-statistic	Significant
1	7/29/16 8:00 AM	ExxonMobil reports EPS of $0.41, a miss of the consensus EPS of $0.64 and an upstream loss of $514 million, and Imperial releases Q2 2016 earnings	7/29/2016	-0.65%	0.00%	-1.14%	-0.00074	1.62949	0.87359	0.76191	-1.07%	0.42%	0.67	[illegible]

[A] The timestamp of the event of interest (various sources)
[B] Description of alleged misrepresentation or alleged corrective disclosure
[C] Date of the model. For events that occur after trading hours the event window of interest is the close to close period for the next day. Close to close for event study date t refers to the return from close on day t-1 to close on day t
[D] Imperial's dividend adjusted stock return (source: Bloomberg)
[E] The market return equals the return on the S&P Toronto Stock Exchange Total Return Index return after removing Imperial's daily return based on its daily weight from the index (source: Bloomberg)
[F] The industry return equals the return on the S&P 500 Integrated Oil & Gas Sub Industry Total Return Index return after removing ExxonMobil's daily return based on its daily weight from the index (source: Bloomberg)
[G] Intercept from regression over prior 252 trading days
[H] Coefficient on market index from regression over prior 252 trading days
[I] Coefficient on net-of-market industry index from regression over prior 252 trading days
[J] Adjusted R-Squared from regression over prior 252 trading days
[K] Predicted return equals: [G] + [H] * [E] + ([I] * ([F] - [E]))
[L] Residual return equals: [D] - [K]
[M] t-statistic equals: [L] / standard error of the regression over prior 252 trading days
[N] The t-statistic is compared to +/- 1.96 to test for significance at the 95% confidence level

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[1] "Imperial reports $181 million loss in second quarter of 2016," *Canada Newswire* , July 29, 2016